SANYO

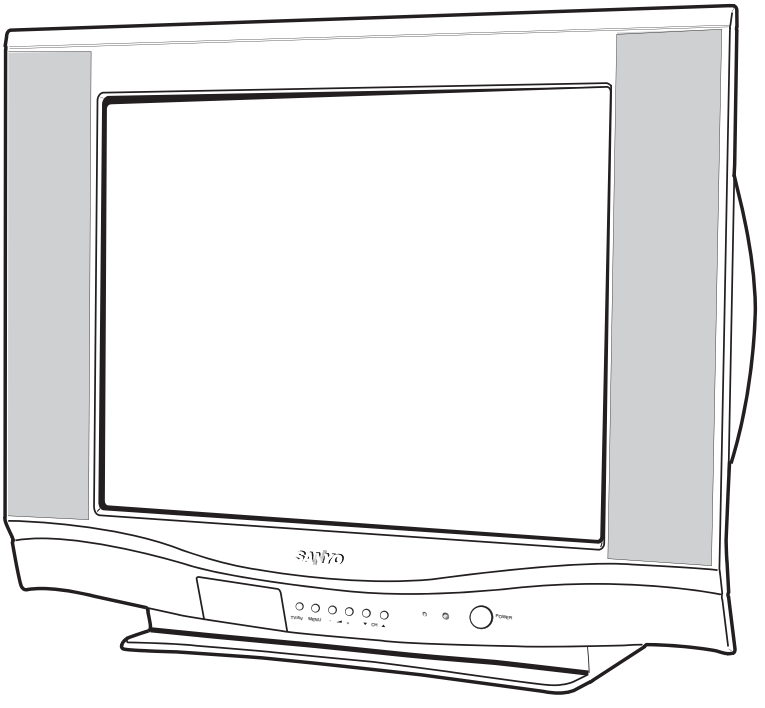
FILE NO.

SERVICE MANUAL Colour Television

Model No. CT21KS2

(Thailand)

Service Ref. No. CT21KS2-00



Specifications

Power Source . . . . . .AC127−240V, 50/60Hz.
Colour System . . . . . .PAL, NTSC4.43, NTSC, PAL 60Hz
Television System . . . . .B/G
Channel Coverage . . . . .VHF: E2-E12, R1-R12, K1-K9, J1-J12, A2-A13
UHF: 21-69, A14-A69, J13-J62
CATV: S1-S41, X, Y, Z, Z+1, Z+2
Video IF . . . . . .38.0 MHz
Aerial Input Impedance . 75Ω
Ext. Terminals
Video inputs: Phono jack × 2 (1.0Vp−p, impedance 75Ω)
DVD Input: Component Video Jack-Y × 1 (1.0Vp-p, impedance 75Ω)
Component Video Jack CB/CR × 1 (0.7Vp-p, impedance 75Ω)
Audio inputs: Phono jack (L/R) × 2 (436mVrms, impedance more than 40KΩ)
Video monitor output: Phono jack × 1 (1.0Vp−p, 75Ω)
Audio monitor outputs: Phono jack(L/R) × 1(436mVrms, Impedance less than 600Ω)
Speaker . . . . . 5 cm × 9 cm × 2 pcs.
Sound Output (RMS) . . . 5W + 5W
Dimensions . . . . . 580 (W) × 465 (H) × 326 (D)mm
Weight . . . . . approx. 19.7 Kg

Specifications subject to change without notice

Product Code: 113016101

Original Version

Chassis Series: FC8-A

Give complete “SERVICE REF. NO.” for parts order or servicing. It is shown on the rating plate at the cabinet back of the unit.

This T.V. receiver will not work properly in foreign countries where the television transmission system and power source differ from the design specifications. Refer to the specification table.

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Safety Notice

SAFETY PRECAUTIONS

1: An isolation transformer should be connected in the power line between the receiver and the AC line when a service is performed on the primary of the converter transformer of the set.

2: Comply with all caution and safety-related notes provided on the cabinet back, inside the cabinet, on the chassis or the picture tube.

3: When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as, control knobs, adjustment covers or shields, barriers, isolation resistor-capacitor networks etc.. Before returning any television to the customer, the service technician must be sure that it is completely safe to operate without danger of electrical shock.

X-RADIATION PRECAUTION

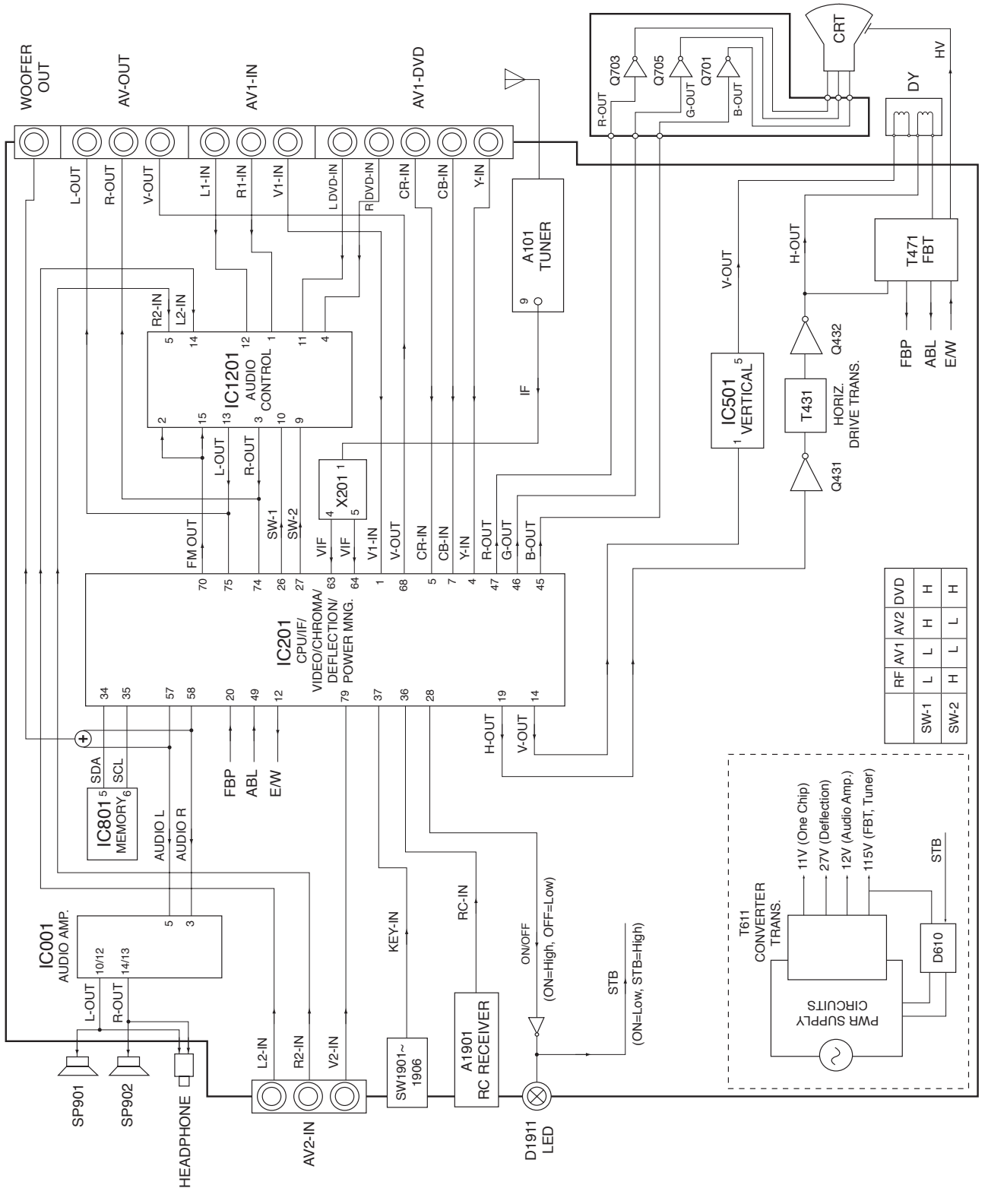
The primary source of X-RADIATION in television receiver is the picture tube. The picture tube is specially constructed to limit X-RADIATION emissions. For continued X-RADIATION protection, the replacement tube must be the same type as the original including suffix letter. Excessive high voltage may produce potentially hazardous X - RADIATION. To avoid such hazards, the high voltage must be maintained within specified limit. Refer to this service manual, high voltage adjustment for specific high voltage limit. If high voltage exceeds specified limits, take necessary corrective action. Carefully follow the instructions for + B1 volt power supply adjustment, and high voltage check to maintain the high voltage within the specified limits.

PRODUCT SAFETY NOTICE

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by mark ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. It is particularly recommended that only parts designated on the parts list in this manual be used for component replacement designated by mark ⚠ . No deviations from resistance

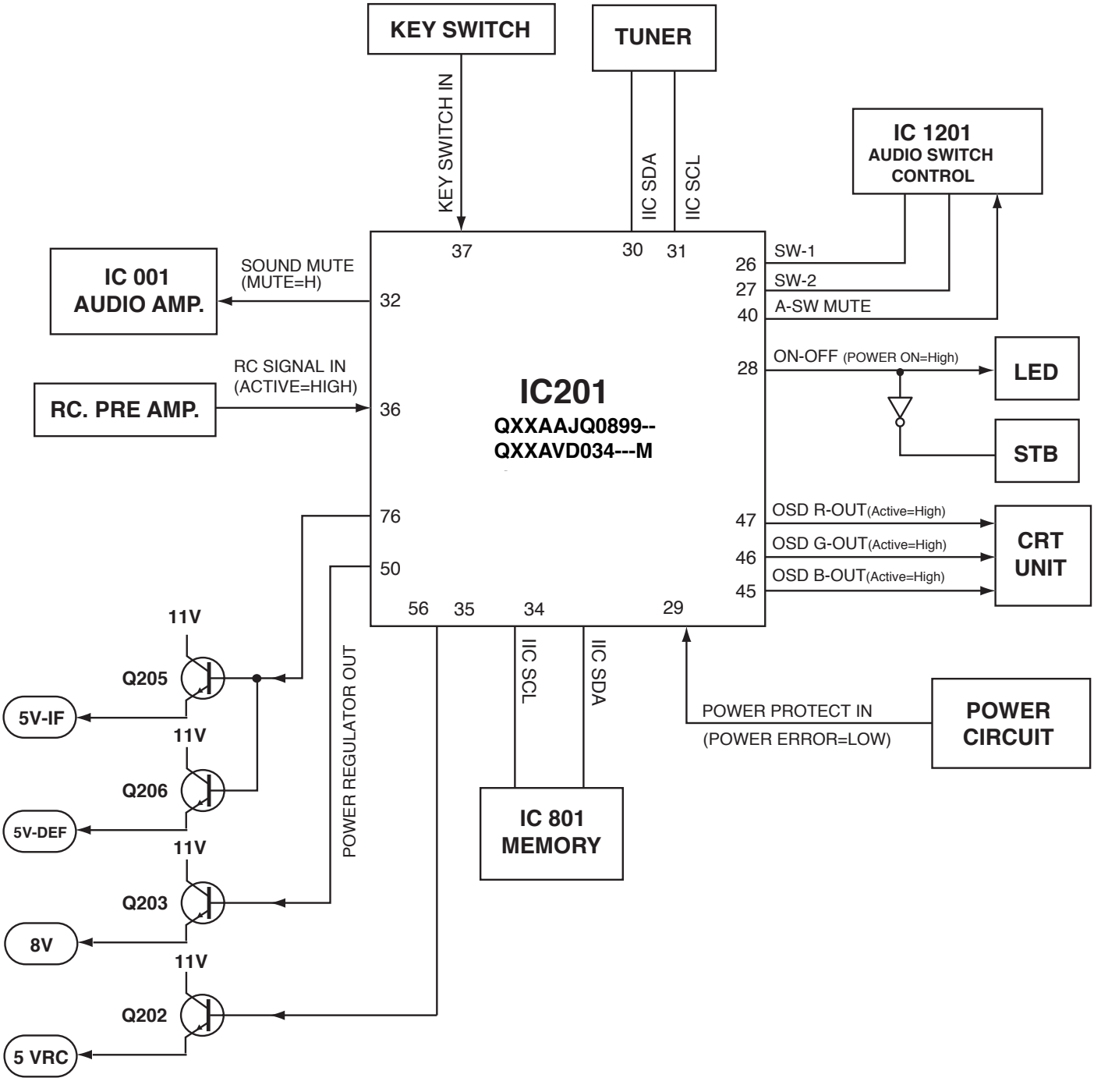
wattage or voltage ratings may be made for replacement items designated by mark ⚠ .

Chassis Block Diagrams



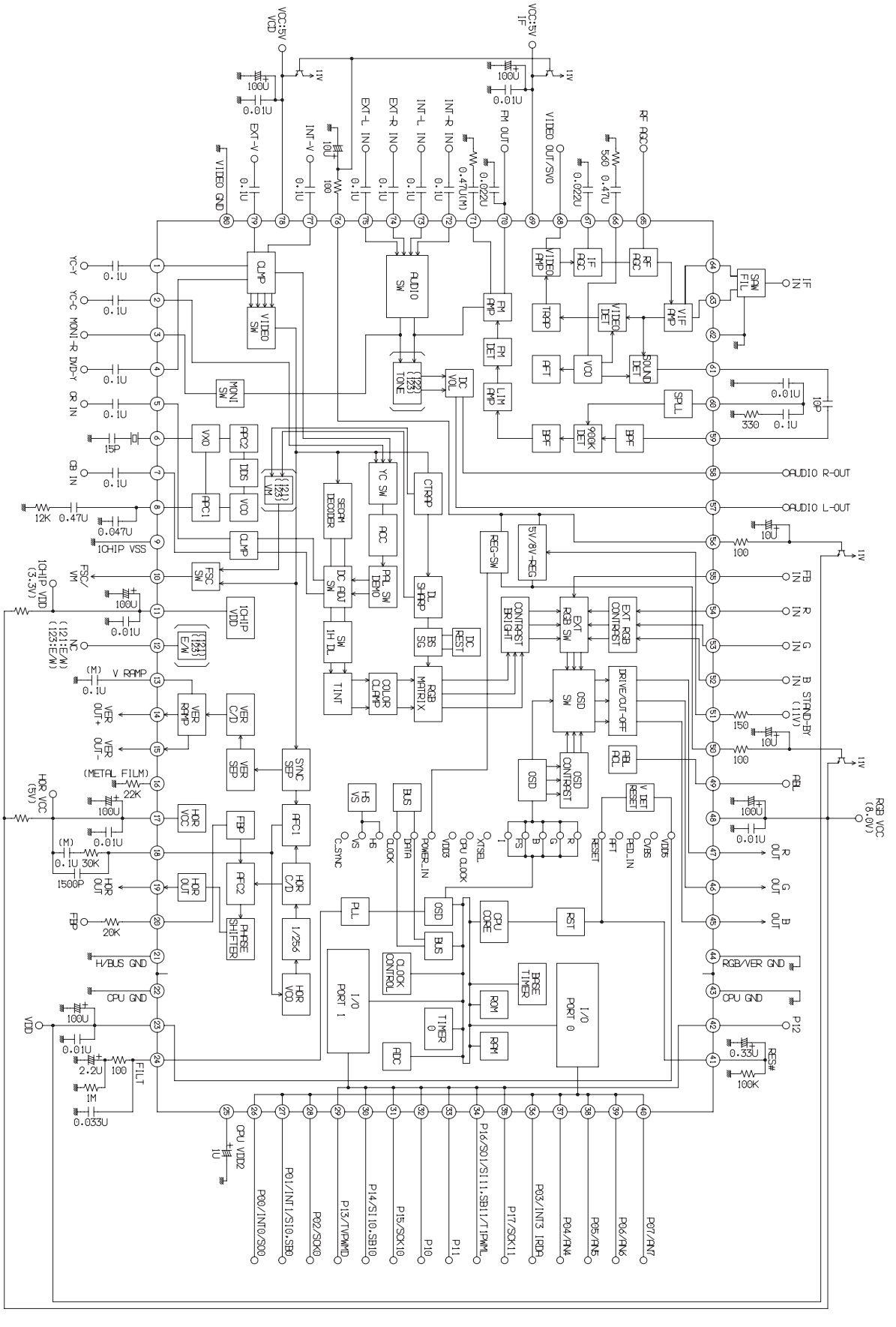
Chassis Block Diagrams

System Control



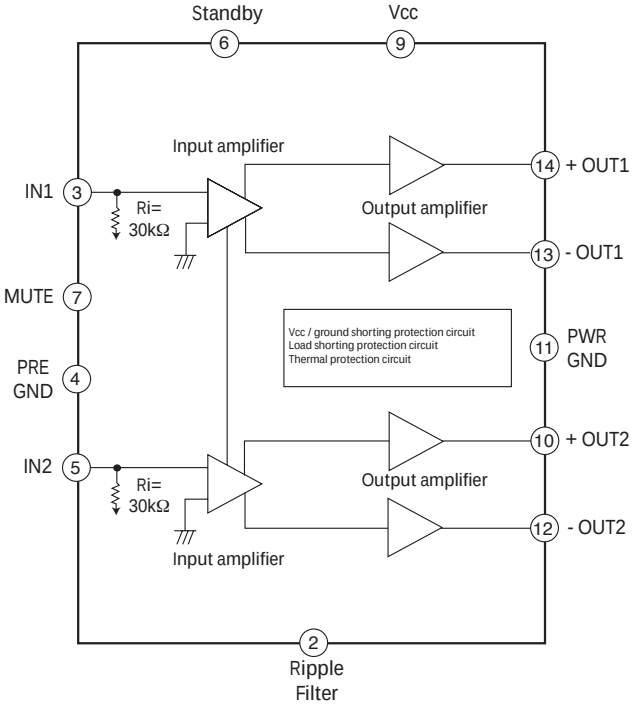
IC Block Diagrams

IC201 < CPU/IF/Video/Chroma/Def.> QXXAVD034---M / QXXAAJQ0899--

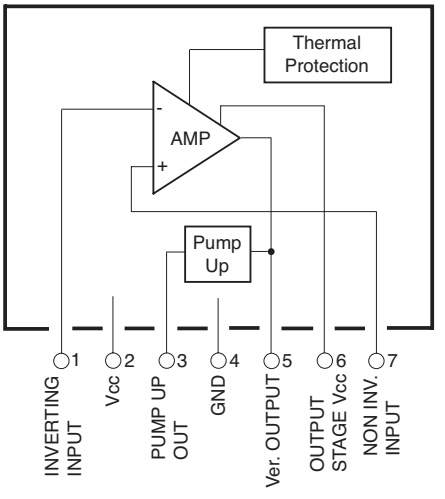


IC Block Diagrams

IC001 < Audio AMP.> LA42205-E



IC501 < Vertical Output > LA78141-E

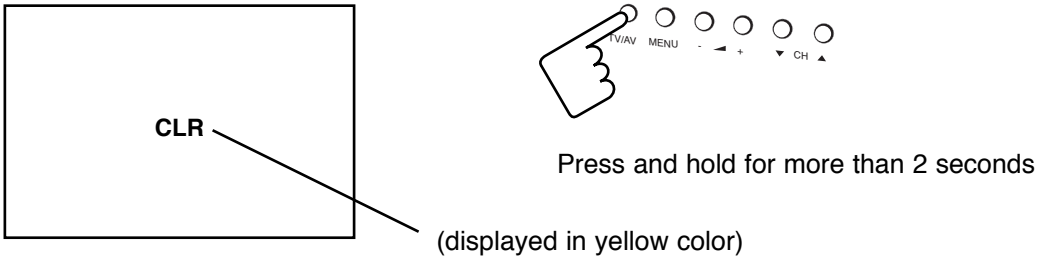


Service Adjustments with Replacing Memory IC(IC801)

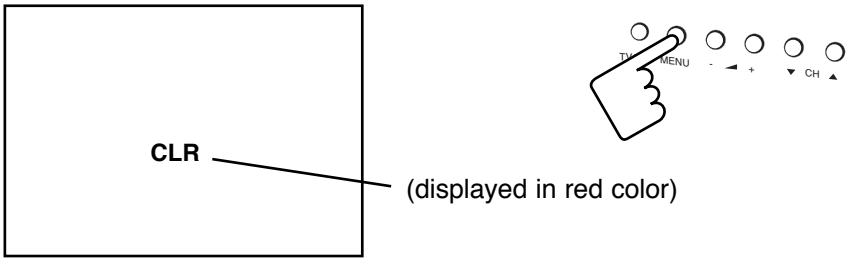
Note: The CPU (IC201) and memory IC (IC801) store the service adjustments data and controls data for each circuit.When the Memory IC(IC801) is replaced, some of the service adjustments should be readjusted to obtain the best performance. The necessary service adjustments are carried out by using the RC handset. Please set up the TV set with following steps [1] to [2].

[1] Initializing Procedure

1. Put a new memory IC.
2. Turn on the TV set.
3. Press and hold the **TV/AV Selector** on the TV set for more than 2 seconds. The following picture appears on the screen.



4. Press the **MENU** on the TV set while the above On-Screen Display is still on the screen. The following picture appears on the screen.



5. Switch off the TV set by pressing the **Power Switch button** on the TV set while the above On-Screen Display is still on the screen.

This completes the initialization of memory IC.

Following shows the initialized contents of memory data by this procedure.

- Plug & play : No executed
- Inhibit data : Cancelled
- Ch skip data : Cancelled
- Sound volume data : 10/63 steps.
- Volume Lock : OFF
- Colour system : AUTO

[2] Required Service Adjustments

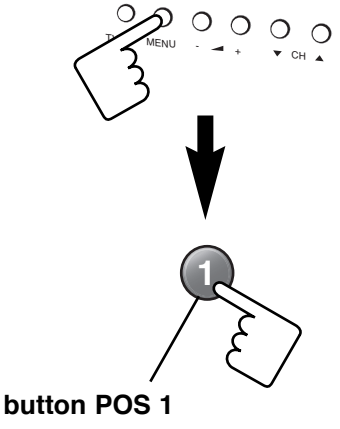
Readjust the following service adjustments.

Adjustments	**Service Mode No. & Item**
RF AGC	Item 91, RFAGC
Horizontal centre	Item 5, H PHA
Vertical Size	Item 7, V-SIZE
Vertical linearity	Item 17, V-LIN
Vertical-S correction	Item 19, V-SC
Gray scale	Item 32 ~ 39

Further adjustment please refer to page 14 and 15.

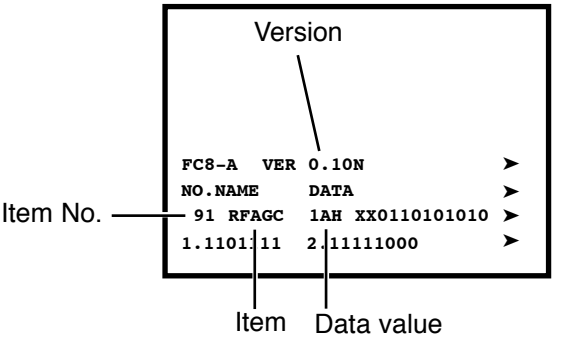
[Entering to Service Mode]

1. Press and hold the **MENU** button on the TV set and press the **numeric 1** button on the Remote Control. Following setting items appears on the screen.

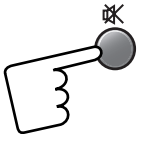


button POS 1

Display for [Align RF AGC Threshold] RF AGC adjustment

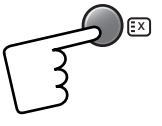


2. Select item by pressing the **SOUND MUTE** (Item No. UP) or **TIMER** (Item No. DOWN) button on the remote control handset.



01➔02➔03➔04➔05.....200

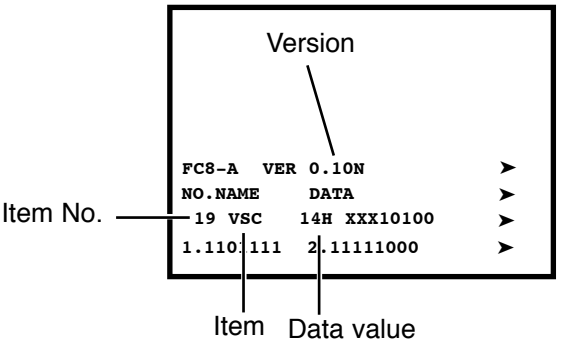
TIMER



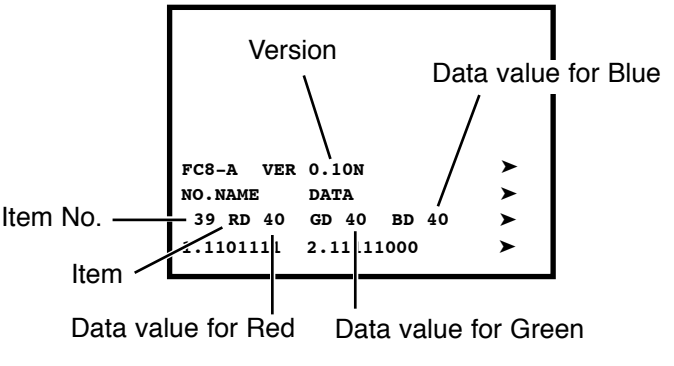
200...96➔95➔94➔93➔.....01

Example

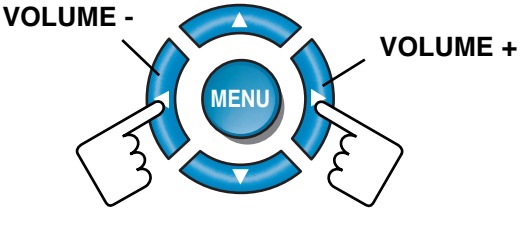
Display for [V-SCO] V-S Correction adjustment



Display for [DRV] White balance adjustment



3. Adjust data value by pressing the **VOLUME +** or **VOLUME –** button on the remote control handset.



To return to normal TV mode, press the **MENU** button on the TV set or the remote control handset.

Service Adjustments with Replacing Memory IC(IC801)

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments.
Service mode adjustments table in CPU ROM

No.	Item	Range	Data	Description
00	T-DIS	0 ~ 1	1	Disable the Test SW & enable Audio / Video Mute SW
01	HFREQ	0 ~ 7F	40	Align ES Sample horizontal frequency (MP is adjusted in the wafer line.)
02	AFC G	0 ~ 1	0	Select horizontal first loop gain & H-sync gating on/off
03	AMUTE	0 ~ 1	0	Disable audio outputs
04	VMUTE	0 ~ 1	0	Disable video output
05	H PHA	0 ~ 1F	0A	Align sync to fly back phase
06	VS275	0 ~ 1	0	Enable 75% vertical size mode
07	VSIZE	0 ~ 7F	40	Align vertical amplitude
08	SKILL	0 ~ 1	0	Force free-run mode
09	VKILL	0 ~ 1	0	Disable vertical mode
10	V DC	0 ~ 3F	28	Align vertical DC bias
11	V SEP	0 ~ 1	0	Select vertical sync. Separation sensitivity
12	V RES	0 ~ 1	0	Select Vertical Reset Timing
13	HLOCK	0 ~ 1	0	Select Vertical sync system
14	VNSYN	0 ~ 1	0	Enable IC Test Mode
15	VSIFT	0 ~ F	5	Align vertical position
16	HBL	0 ~ 7	4	Left H-Blanking Control
17	V LIN	0 ~ 1F	12	Align vertical linearity
18	HBR	0 ~ 7	4	Right H-Blanking Control
19	V SC	0 ~ 1F	14	Align vertical S-correction
20	VTEST	0 ~ 3	0	Select vertical DAC test mode
21	VCOMP	0 ~ 7	7	Align vertical size compensation
22	CDMOD	0 ~ 7	0	Select vertical countdown mode
23	VIL T	0 ~ 1	0	Vertical deinterlace SW
24	VILT2	0 ~ 1	0	Vertical deinterlace SW2
25	VBLKS	0 ~ 1	1	V blanking control SW
26	FBPSW	0 ~ 1	1	Select Horizontal blanking operation
27	AFCNG	0 ~ 1	0	Enable AFC Low gain mode
28	AFC2S	0 ~ 1	0	Select FBP storage-timer tolerance level
29	CRSBW	0 ~ 3	0	Service Test Mode (normal/Cross/Black/White)
30	DEINT	0 ~ 1	0	Deinterlace
31	OETST	0 ~ 1	0	O/E.TEST
32	RBIAS	0 ~ FF	0	Align Red OUT DC level
33	GBIAS	0 ~ FF	0	Align Green OUT DC level
34	BBIAS	0 ~ FF	0	Align Blue OUT DC level
35	RDRV	0 ~ 7F	40	Align Red OUT AC level
36	GDRV	0 ~ 7F	40	Align Green OUT AC level
37	BDRV	0 ~ 7F	40	Align Blue OUT AC level
38	(One Line)	0 ~ 7F	-	White Balance
39	RD xx GD xx BD xx	0 ~ 7F	40	White Balance
40	BLDEF	0 ~ 1	0	Disable RGB output blanking
41	SUBBI	0 ~ 7F	38	Align common RGB DC level
42	VTRNS	0 ~ 1	1	Enable data transmission between vertical retrace period

(/JE0356C)

Service Adjustments with Replacing Memory IC(IC801)

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments.
Service mode adjustments table in CPU ROM

No.	Item	Range	Data	Description
43	DOSD	0 ~ 1	1	Select Digital OSD mode/Analogue OSD mode
44	EXCNT	0 ~ F	8	Align Ext. RGB amplitude
45	OSDCN	0 ~ 7	2	Align OSD AC level
46	RGBSW	0 ~ 1	1	Select the temperature characteristics for RGB DC output
47	ACLDF	0 ~ 1	0	Disable Contrast ABL
48	ACLSW	0 ~ 1	0	Changes inclination of Contrast ABL
49	BABLD	0 ~ 1	0	Disable brightness ABL
50	MIDDF	0 ~ 1	0	Disable brightness mid stop
51	BABLT	0 ~ 7F	2	Align brightness ABL threshold
52	RGBT	0 ~ F	0	Select RGB DAC test mode
53	CLKSP	0 ~ 1	0	Test Mode
54	TSTMD	0 ~ 7	0	Test Mode
55	VXOAD	0 ~ 7	4	VXO Adj.
56	MCBCR	0 ~ 1	0	Chroma Test Mode
57	FODDS	0 ~ 1	0	Select DDS mode
58	CBCRI	0 ~ 1	0	Select YCbCr Input
59	CEXT	0 ~ 1	0	Selected of chroma signal
60	CBYPS	0 ~ 1	0*	Select chroma BPF bypass
61	CK ON	0 ~ 1	0	C Kill Mode (0: Enable Killer circuit)
62	CK OFF	0 ~ 1	0	Disable Killer circuit (for IC Test)
63	CKOPE	0 ~ 7	4	Select color killer operational level
64	AUTOG	0 ~ 7	0	Adjust Auto Green level
65	TINT	0 ~ 1	0	Set tint center value
66	WBADJ	0 ~ 1	0	Auto correct black level
67	IDKIL	0 ~ 7	4	Select color ident operational level
68	CVCOA	0 ~ 7	4	Control free Run frequency of chroma VCO
69	CVCOC	0 ~ 1	0	VCO free run mode
70	FSCSP	0 ~ 1	1	Select 10 pin output
71	COLSY	0 ~ 7	2*	Select Color System
72	RBGAI	0 ~ F	A	R-Y/B-Y Gain Balance
73	RBANG	0 ~ F	5	R-Y/B-Y Angle
74	RYLEF	0 ~ 1	D	R-Y DC Level (White-Balance)
75	BYLEF	0 ~ 1	E	B-Y DC level (White-Balance)
76	GYAMP	0 ~ F	6	Adjust G-Y amplitude
77	HTNCL	0 ~ 1	0	Select color on/off at Half Tone Mode
78	VXOFR	0 ~ 1	0	VXO test mode
79	VXOSB	0 ~ 1	0	VXO test mode
80	DEEMS	0 ~ 1	1	Select De-emphasis filter cut-off frequency
81	BELAD	0 ~ F	7	Align Bell filter
82	EQUAD	0 ~ F	0	Align Equalizer
83	BELMO	0 ~ 1	0	SECAM test mode
84	SKLOP	0 ~ 7	4	Select SECAM color killer operational level
85	SKLON	0 ~ 1	0	SECAM Color Kill Mode (0: Enable Killer Circuit)
86	SKLOF	0 ~ 1	0	Disable Killer circuit (for IC Test)
87	BELBY	0 ~ 1	0	Select BELL Filter bypass

Service Adjustments with Replacing Memory IC(IC801)

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments.
Service mode adjustments table in CPU ROM

No.	Item	Range	Data	Description
88	EQUON	0 ~ 1	0	Enable EQU circuit
89	IFAGC	0 ~ 1	0	Disable IF and RF AGC
90	SVOSW	0 ~ 1	0	Select pin 68 output
91	RFAGC	0 ~ 3F	1A	Align RF AGC threshold
92	STRAP	0 ~ 1	1	Select sound trap ON/OFF
93	VIFSY	0 ~ 7	0	Select VIF Freq. 38.0/38.9/39.5/45.75/58.75MHz
94	VLEF	0 ~ 7	7	Align IF video level
95	OMTYP	0 ~ 1	0	Select VIF over modulation function
96	OMSW	0 ~ 1	0	Select VIF over modulation function
97	OMLEV	0 ~ F	8	Adjust over modulation operating point
98	VCOFQ	0 ~ FF	60	Align ES Sample IF VCO Frequency. (MP is adjusted in the wafer line)
98	AMOSW	0 ~ 1	0	Select pin 70 output
100	DEMTC	0 ~ 1	0	Select De-emphasis Time Constant
101	FMGAI	0 ~ 1	0	Select FM Output Level
102	A2SW	0 ~ 1	0	West Germany Output Level
103	SIFSY	0 ~ 3	1	Select 4.5/5.5/6.0/6.5 MHz
104	CHCON	0 ~ 1	0	CH converter measure mode at India
105	FMMUT	0 ~ 1	0	Disable FM output
106	AFTSE	0 ~ 3	2	Select AFT sensitivity 10/13/20/40 [mV/KHz]
107	IFTES	0 ~ 1	0	IF Test mode
108	VCOAD	0 ~ F	8	Fine adjust of IFVCO Free run
109	EWDC	0 ~ 3F	18	Align East/West DC bias
100	EWAMP	0 ~ 3F	0A	Align East/West amplitude
111	EWTIL	0 ~ 3F	20	Align East/West Trapezoid
112	EWBOT	0 ~ F	0B	Align East/West Bottom corner correction
113	EWTOP	0 ~ F	0A	Align East/West Top corner correction
114	EWCSW	0 ~ 1	0	Select control range for Corner correction
115	EWTES	0 ~ 1	0	Select East/West DAC test mode
116	HSCMP	0 ~ 3F	07	Align horizontal size compensation
117	VOLFL	0 ~ 1	0	Enable volume filterl
118	VOL L	0 ~ 7F	21	Customer L-ch volume control
119	AUDSW	0 ~ 1	1	Select audio input signal
120	CLKTS	0 ~ 1	2*	Operation CLK test modes
121	SRCNT	0 ~ 1	0*	Select surround effect
122	DCCUT	0 ~ 1	2*	DC cut test modes
123	MONOM	0 ~ 1	0	Enable mono input mode
124	VOL R	0 ~ 7F	21	Customer R-ch volume control
125	TOATT	0 ~ 1	0*	Enable tone attenuator
126	TBOST	0 ~ 1	1*	Select Boost/Cut of treble tone control
127	TRGAI	0 ~ 3F	3F	Customer treble gain control
128	PEST	0 ~ 1	0	Pseud Stereo
129	BBGOST	0 ~ 1	1*	Select Boost/Cut of bass tone control
130	BAGAI	0 ~ 3F	3F	Customer bass gain control
131	YFLSY	0 ~ 3	1	Select Y Filter mode
132	CFLSY	0 ~ 3	2	Select C Filter mode

Service Adjustments with Replacing Memory IC(IC801)

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments.
Service mode adjustments table in CPU ROM

No.	Item	Range	Data	Description
133	Y APF	0 ~ 1	0	Y APF
134	YDLAD	0 ~ 7	4	Y Delay Adjust
135	COGAI	0 ~ 3	2	Select Coring Gain
136	PRESH	0 ~ 3	0	Select pre-shoot width
137	OVRSH	0 ~ 3	2	Select Over-shoot adjustment
138	WPLOP	0 ~ 3	1	Select White Peak Limiter level. (with Defeat)
139	YGAMS	0 ~ 3	3	Select Y Gamma start point. (with Defeat)
140	DCRES	0 ~ 3	0	Select luminace DC restoration
141	BLKST	0 ~ 3	0	Select Black Stretch Start Point (w/Defeat)
142	BLKGA	0 ~ 3	1	Select black stretch gain
143	CTRAP	0 ~ 7	4	Fine adjust of chroma trap
144	CBPF	0 ~ 3	0	Fine adjust of chroma BPF
145	STRAP	0 ~ 7	3	Fine adjust of sound trap
146	YGAMG	0 ~ 3	0	Select Y gamma gain
147	GRAY	0 ~ 1	0	Service Test Mode (White/Gray)
148	YCMIX	0 ~ 1	0	Select YC_C Input or 2.2V_DC Input
149	TXTCC	0 ~ 1	0	Select output by LPF or not
150	VIDEO	0 ~ 3	0	Video signal selector
151	DLYTE	0 ~ 1	0	DELAY Test
152	VMDLY	0 ~ 1	0	Select Delay of VM OUT
153	VMGAI	0 ~ 7	4	Select GAIN of VM OUT
154	SYSEP	0 ~ 7	2	Select sync separation threshold level
155	HPH60	0 ~ FF	1	Align sync to fly back phase (60Hz data)
156	VSZ60	0 ~ FF	0	Align vertical amplitude (60Hz)
157	VDC60	0 ~ FF	0	Align vertical DC bias (60Hz)
158	VSF60	0 ~ FF	1D	Align vertical position (60Hz)
159	VL160	0 ~ FF	0	Align vertical linearity (60Hz)
160	VSC60	0 ~ FF	0	Align vertical S-correction (60Hz)
161	VC060	0 ~ FF	0	Align vertical size compensation (60Hz)
162	EWD60	0 ~ FF	1	Align East/West DC bias (60Hz)
163	EWA60	0 ~ FF	0	Align East/West amplitude (60Hz)
164	EWT60	0 ~ FF	0	Align East/West trapezoid (60Hz)
165	EWB60	0 ~ FF	0	Align East/West Bottom corner correction (60Hz)
166	EWP60	0 ~ FF	0	Align East/West Top corner correction (60Hz)
167	CSW60	0 ~ FF	0	Select control range for Corner correction
168	CMP60	0 ~ FF	0	Align horizontal size compensation
169	OPT1	0 ~ FF	CE	OPTION1 [AV sys Opt (bit ke-0,1), Plug 'n Play (2), Color
170	OPT2	0 ~ FF	1	OPTION2 { Bass Expander (bit ke-0,1), MPP (bit ke-4; 0: Off, 1:On), Boster (bit ke-5; 0:Off, 1:On }
171	MHOSD	0 ~ FF	2E	Horizontal position of OSD
172	SUBCL	0 ~ FF	1	Sub Color(AV)
173	SUBBR	0 ~ FF	E9	Sub Brightness(AV)
174	SUBCN	0 ~ FF	1	Sub Contrast(AV)
175	SUBSH	0 ~ 7F	77	Sub Sharpness(AV)
176	RFCOL	0 ~ FF	0	Bias Color(RF)

Service Adjustments with Replacing Memory IC(IC801)

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments.

Service mode adjustments table in CPU ROM

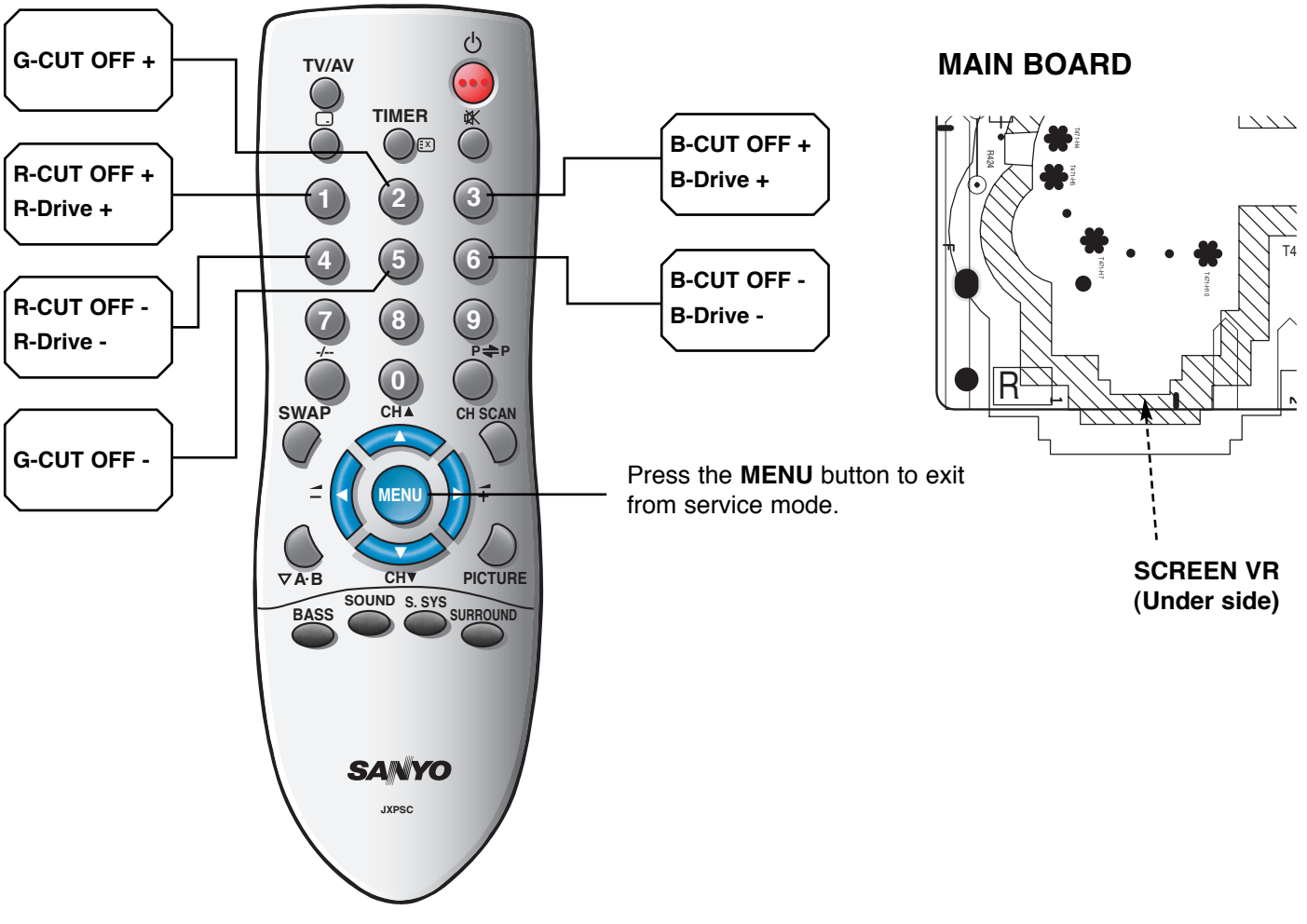
No.	Item	Range	Data	Description
177	RFBRI	0 ~ FF	0	Bias Brightness(RF)
178	RFCON	0 ~ FF	0	Bias Contrast(RF)
179	RFSHP	0 ~ 7F	7F	Bias Sharpness(RF)
180	DVDCL	0 ~ FF	10	Bias Color(DVD)
181	DVDBR	0 ~ FF	0	Bias Brightness(DVD)
182	DVDCN	0 ~ FF	0	Bias Contrast(DVD)
183	DVDSP	0 ~ 7F	0	Bias Sharpness(DVD)
184	DVDRY	0 ~ 3F	8	Bias R-Y DC LEVEL (DVD)
185	DVDBY	0 ~ 3F	D	Bias R-Y DC LEVEL (DVD)
186	CON60	0 ~ FF	5	CONTRAST(60Hz)
187	BRI60	0 ~ FF	0	BRIGHT(60Hz)
188	COL60	0 ~ FF	EA	COLOR(60Hz)
189	SUBTT	0 ~ FF	0B	SUB TINT
190	SECRY	0 ~ 3F	3D	Bias R-Y DC LEVEL (SECAM)
191	SECBY	0 ~ 3F	3F	Bias B-Y DC LEVEL (SECAM)
192	RBANT	0 ~ 1F	0	R-Y/B-Y ANGLE (NTSC)
193	RBAV3	0 ~ 1F	5	R-Y/B-Y ANGLE (VIDEO)
194	VOL G0	0 ~ 7F	0	Volume Gain 0
195	VOL G1	0 ~ 7F	36	Volume Gain 1
196	VOL G2	0 ~ 7F	53	Volume Gain 2
197	VOL G3	0 ~ 7F	68	Volume Gain 3
198	POMT	0 ~ 7F	17	Power ON Video Mute Time
199	SYSAV	0 ~ FF	4	Select sync separation threshold level for AV
200	ROMCR	0 ~ FF	0	ROM CORRECTION

Service Mode Adjustments

Items 32 - 39 GREY SCALE

(1) Receive a monochrome circular pattern.
(2) Set the brightness and colour to normal, contrast to maximum.
(3) Enter to the service mode.
(4) Select No. **32 RBIAS (R)**, **33 GBIAS (G)**, **34 BBIAS (B)**, and No. **39 WHITE BALANCE** and set each data to 0 by pressing the VOLUME + or - key.
(5) Select No. **39 WHITE BALANCE** (R-Drive and B-Drive) and set data to 3F by pressing the VOLUME + or - key.
(6) Turn Screen Control on the FBT (T471) to minimum (fully counter-clock-wise).
(7) Select No. **38 (1-line appear)**.
(8) Advance Screen Control clockwise to obtain just visible one colour line. If line does not appear, place this control to maximum (fully clockwise).
(9) Raise each CUT OFF Level with 1, 2, 3, 4, 5 and 6 keys to obtain just visible white line.
(10) Select No. **39 WHITE BALANCE** (Drive Adjustments).
(11) Adjust Red and Blue Drive Levels alternately with 1, 3, 4 or 6 key to produce normal black and white picture in highlight areas.
(12) Check for proper grayscale at all brightness levels. To turn off the TV Service Menu display, press the MENU key.

Note: If the Grayscale adjustment is made after picture tube replacement, check the High Voltage



Service Mode Adjustments

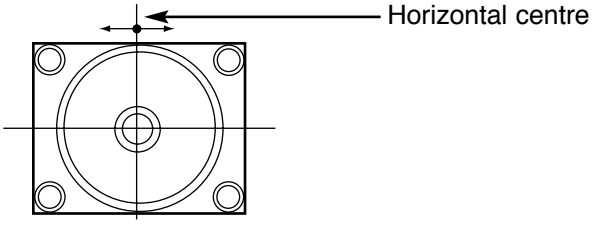
Following adjustments should be carried out when the memory IC is replaced. How to enter the service mode and adjust values, please refer to " Entering to Service mode" on page 8.

Item 91 [ALIGN RF AGC THRESHOLD] RF AGC

NOTE: Do not attempt this adjustment with weak signal.
(1) Tune the receiver to most clearest (or strongest) VHF station in your area. Set the brightness and contrast controls to maximum. Set the colour control to minimum.
(2) Select 91 [Align RF AGC Threshold] in the service mode.
(3) Change value until the snow noise just disappears.
(4) Exit from service mode.

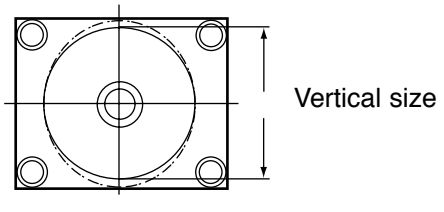
Item 5 [ALIGN SYNC. TO FLY BACK PHASE H-PHA

(1) Receive a monochrome circular pattern.
(2) Set the brightness and contrast to normal.
(3) Select 5 [Align Sync. to Fly Back Phase] in the service mode.
(4) Change value to be optimum horizontal centre position.
(5) Exit from service mode.



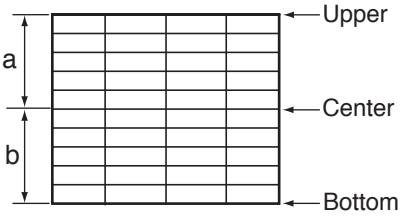
Item 7 [V-SIZE 50] VERTICAL SIZE

(1) Receive a monochrome circular pattern..
(2) Set the brightness and contrast to maximum.
(3) Select 7 [Align Vertical Amplitude] in the service mode.
(4) Change value to be optimum vertical size.
(5) Exit from service mode.



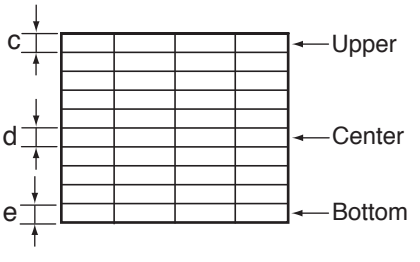
Item 17 [ALIGN VERTICAL LINEARITY] V LIN

(1) Receive a crosshatch pattern.
(2) Select a picture mode of NATURAL by pressing the PICTURE MODE button.
(3) Select 17 [Align Vertical Linearity] in the service mode.
(4) Adjust Vertical Linearity so that the difference of "a" and "b" becomes less than 3mm by pressing VOLUME + or - button.
(5) Exit from service mode.



Item 19 [ALIGN VERTICAL S-CORRECTION] V SC

(1) Receive a crosshatch pattern.
(2) Select a picture mode of NATURAL by pressing the PICTURE MODE button.
(3) Select 19 [Align Vertical S-Correction] in the service mode.
(4) Adjust Vertical S-letter Correction so that the difference of "c", "d" and "e" becomes less than 2 mm by pressing the VOLUME + or - button.
(5) Confirm Vertical Linearity and adjust Vertical Center then Vertical Size.
(6) Exit from service mode.



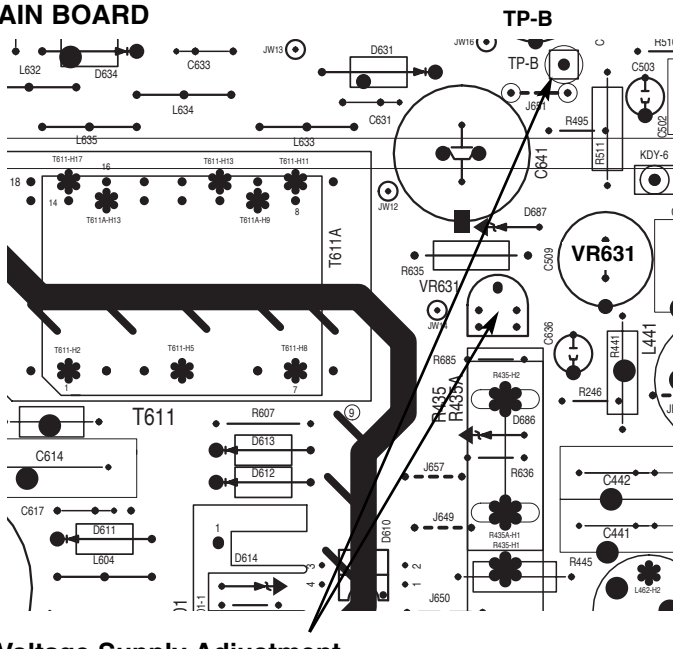
Service Adjustments

Following adjustments are not required to readjust when replacing the memory IC.

B-VOLTAGE SUPPLY CHECKING

(1) Connect DC meter to TP-B and the ground.
(2) Tune the receiver to an active channel and synchronized picture. Select NATURAL picture mode by pressing the **PICTURE MODE** button on the remote control.
(3) Adjust B-voltage to be 115 ± 0.5V DC by using VR631.

MAIN BOARD

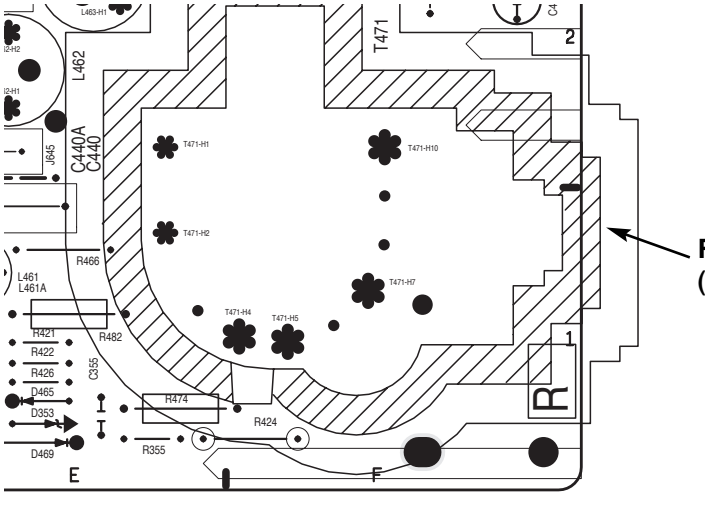


B-Voltage Supply Adjustment

FOCUS ADJUSTMENT

(1) Receive the monochrome circular pattern.
(2) Set the brightness to normal and contrast to maximum.
(3) Adjust the focus control on the F.B.T. for the best focus on the screen centre.

MAIN BOARD



Focus VR (Upper side)

HIGH VOLTAGE CHECK

Note: *+B (+115V) Voltage Check and Grayscale Adjustment must be completed before attempting High Voltage Check.*

(1) Connect high voltage voltmeter negative lead to ground, and connect + lead to anode of picture tube.
(2) Tune receiver to an active channel and confirm TV is operating properly.
(3) Maximize the beam current by adjusting the contrast and brightness controls to maximum. Confirm high voltage is within 25.5 KV and 26.5 KV at maximum beam current.
(4) Eliminate the beam current by adjusting the contrast and brightness controls to minimum. Confirm high voltage does not exceed 29 KV at zero beam current.

If reading is not within range, check horizontal circuit.

No high-voltage adjustment is provided on this chassis.

Special Function

The following special functions can be set up on this TV set.

(1) Volume Lock setting

With this function, a maximum sound volume limit can be set at any level.

(2) Tuning Lock setting

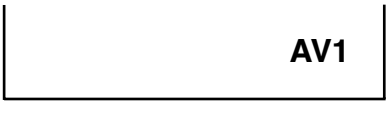
Once TUNING LOCK is switched on, further channel tuning (Pre-set) is not possible. The Channel Swapping function also is not possible.

(3) Music Mode setting

When Music Mode is ON, Programme position from “247” to “255” and “0” are set Music Mode. Only sound is provided and any picture is not on the screen under Music Mode.

(4) Start Mode setting

When power is turned ON, last position tunes in. Select **OFF** to start from TV mode, **ON** to start from AV1 mode, or channel number (**1-255**) to start from it’s initial position.



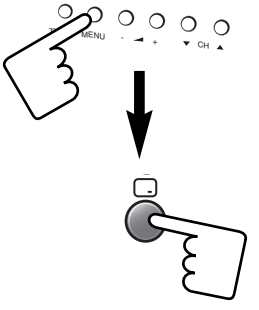
(5) AC Power Mode setting

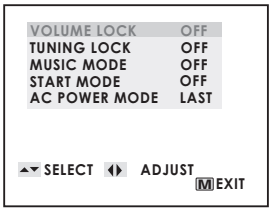
To set condition TV plug in. Select **ON**, when AC cord plug-in, CRT TV always ON. **STAND BY**, when AC cord plug-in, always stand by. **LAST**, when AC cord plug-in, switch on depend on last TV condition (ON or Stand by).

How to set the special function:

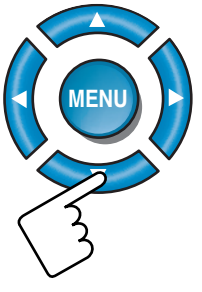
Note: When making the VOLUME LOCK setting, set the desired maximum sound volume by pressing the **VOLUME +** or **–** button before entering Special Function setting mode.

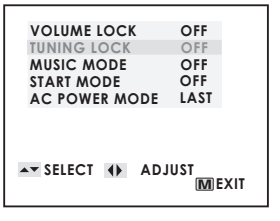
1 To enter into the special function setting mode, press and hold the **MENU** button of the TV set, then press the **Recall** button on the Remote Control.



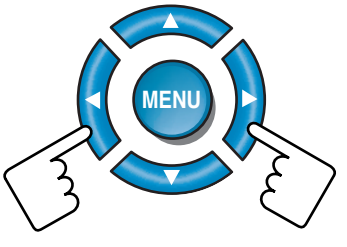


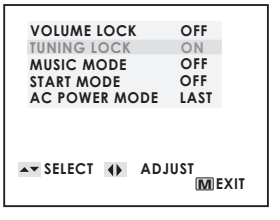
2 Select an item of the special functions by pressing the **PROGRAMME UP** or **DOWN** button on the remote control or the TV set.



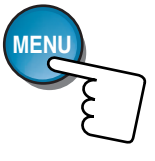


3 Set the selected special function “ ON “ by pressing the **VOLUME +** or **–** button. To cancel, set to “ OFF”.





4 Press the **MENU** button of the remote control to return to the normal TV mode.



Purity and Convergence Adjustment

CAUTION: The Convergence and Purity adjustments have been made at the factory. Readjustment should be made only after picture tube or deflection yoke replacement, following the steps below:

PURITY ADJUSTMENT

1. Demagnetize the picture tube and receiver using an external degaussing coil. When replacing picture tube or deflection yoke, mount deflection yoke and purity-convergence magnets assembly properly, see figures 1 and 4.
2. Turn Red and Blue guns off and provide only Green raster. Rotate Screen control to fully counterclockwise. Rotate Red and Blue Bias controls fully counterclockwise. Slowly rotate Green Bias control clockwise to produce Green raster.
3. Loosen the screw holding the Deflection Yoke and remove the 3 Rubber Wedges, and slide the Deflection Yoke fully forward.
4. Rotate and spread the Tabs of the two Purity Magnets to centre the vertical green belt in the picture screen. The Purity Magnets are also adjusted to obtain vertical centring of the raster.
5. Slowly slide the Deflection Yoke backward until a uniform green screen is obtained.
6. Check the purity of the red and blue screens for uniformity, turn off other colours to check this (use bias controls). Readjust the yoke position if necessary until all screens are pure.
7. Adjust each Bias control and screen control to obtain white raster. Refer to Gray Scale Adjustment. If part of the picture screen is coloured, adjust the Deflection Yoke position forward or backward slightly.
8. Tighten the mounting screw of the Deflection Yoke. Adjust Convergence next.

CENTRE CONVERGENCE ADJUSTMENT

1. Use a dot crosshatch pattern signal.
2. Turn Red and Blue guns on and turn off Green gun. Adjust the angle between the Tabs of the Four Pole Magnet 1 and 2, and superimpose the Red and Blue vertical lines in the centre area of the picture screen. Refer to figure 2.
3. Keeping the mutual angle of the Tabs of the Four Pole Magnet turn them together to superimpose the Blue and Red horizontal lines in the centre area of the picture screen. Refer to figure 2.
4. Turn Green gun on and adjust Six Pole Magnet 3 and 4 that the Green line superimposed on the Red/Blue lines.
   This is the same procedure used in steps 2 and 3.
   Refer to figure 3.

OUTER AREA CONVERGENCE ADJUSTMENT

Slightly loosen the screw holding the Deflection Yoke. Adjust the Deflection Yoke to converge the detail in the outer area (left side and right side) of the picture screen by orbital movement of the front of the Yoke, then secure the Deflection Yoke in appropriate position by putting the wedges as illustrated. Tighten screw holding the Deflection Yoke.

Note: The form of deflection yoke changes with models.

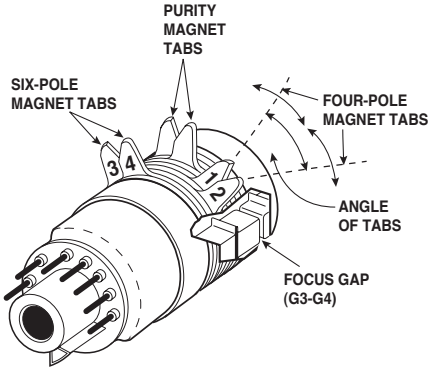


Figure 1. Purity and Convergence Magnets

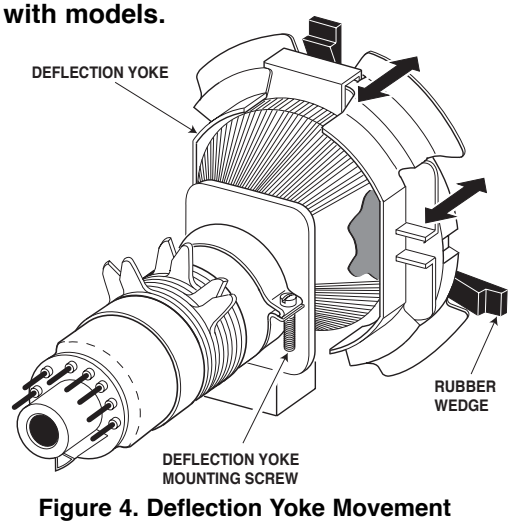


Figure 4. Deflection Yoke Movement

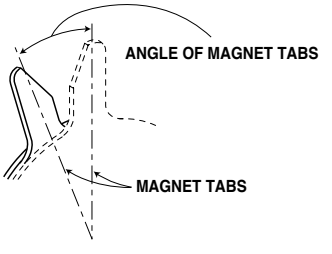


Figure 5. Adjusting Magnet

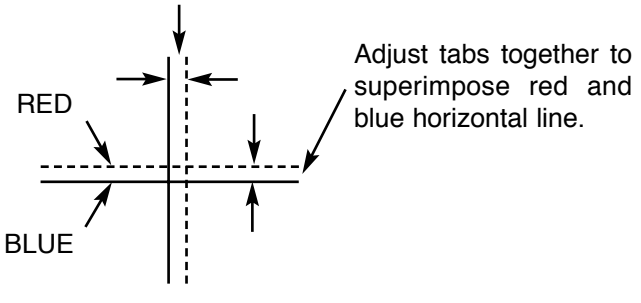


Figure- 2 BLUE AND RED LINE MOVEMENT

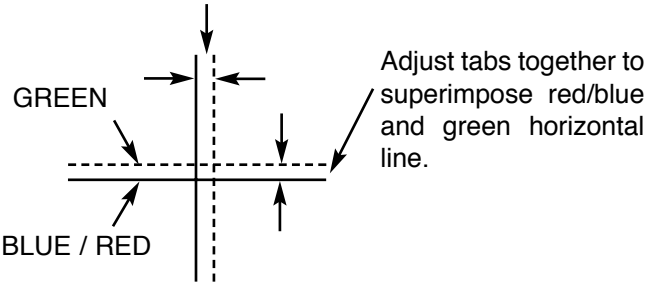


Figure- 3 BLUE/RED AND GREEN MOVEMENT

Mechanical Disassembly

CABINET BACK REMOVAL

1. Refer to Figure 1, remove 9 screws.
2. Pull off cabinet back and remove.

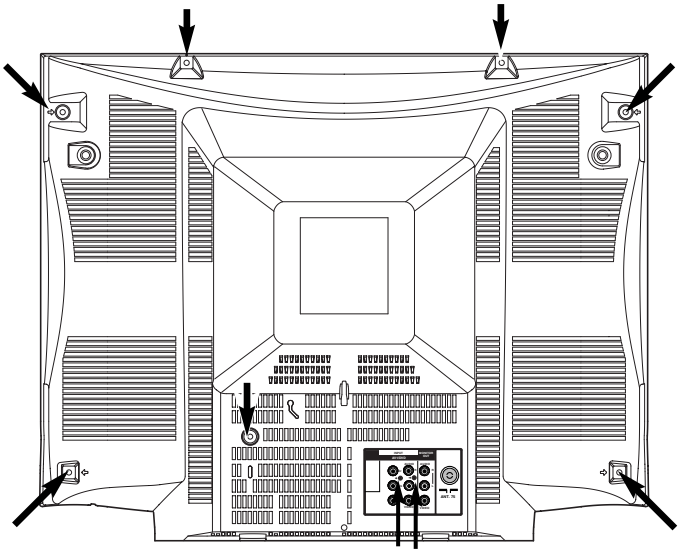


Figure 1. Cabinet Back Removal

Protection Circuit

This TV set has a built-in power supply protection circuit.
It is provided to protect the TV set in case of a power supply circuit malfunctions. When something abnormality occurs during TV reception, the TV set goes to the stand-by mode.

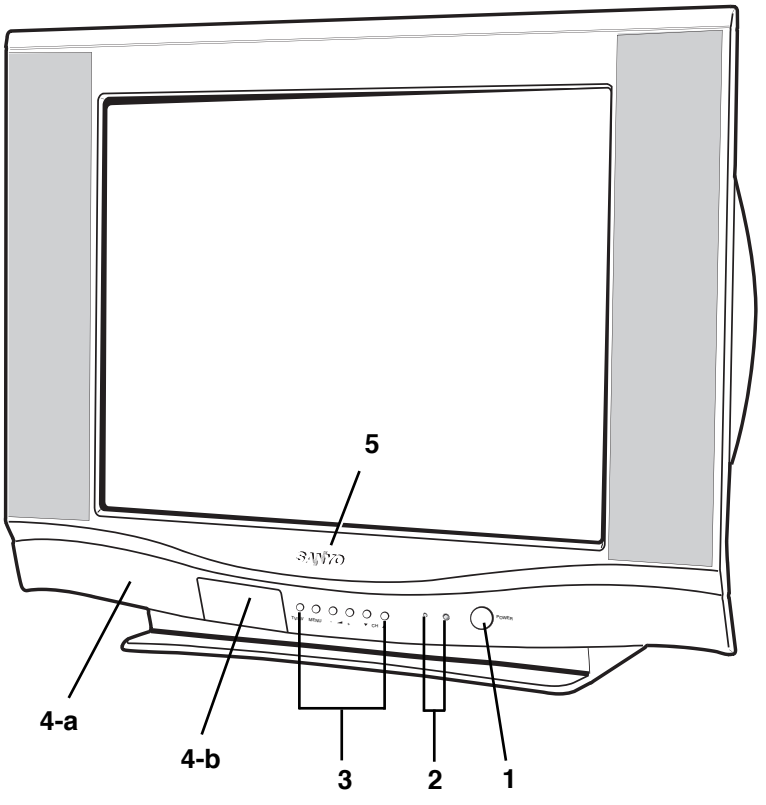
When an abnormality occurs during TV reception, it causes pin 29 of the Processor to go continually Low (less than 2.0V) for about 2 second. The Processor detects that this has occurred and outputs the signal from pin 28 to switch off the power supply lines.

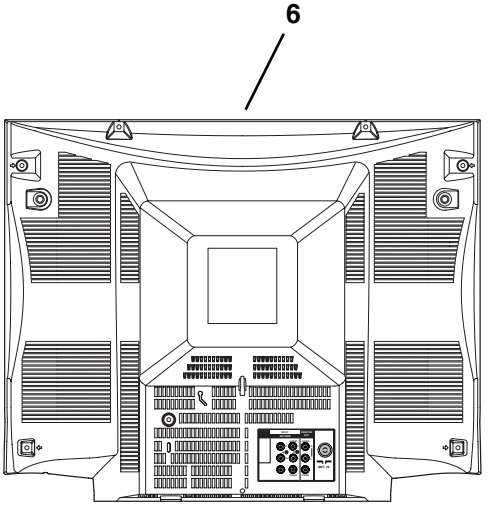
■ Releasing the protective circuit and restoring power supply

To release the protective circuit and restore power supply, turn the power to the TV set OFF and then ON again via either the main power switch or the ON-OFF button on the remote control. This will work only if the power supply trouble was temporary. If there is permanent trouble such as a damaged circuit, power cannot be restored and the circuit will have to be repaired.

Cabinet Parts List

Note: Parts order must contain Service Ref. No., Part No., and descriptions.





Key No.	Part No.	Description	Key No.	Part No.	Description
1	610 339 2820	BUTTON POWER BE4A			
	610 229 8406	SPRING-E3HA (for button power)			
2	610 339 3513	DEC IND-BE4A			
3	610 339 2844	BUTTON UNITED BE4A			
4	610 341 2368	ASSY,CABINET FRONT-BE4A			
4-a	610 339 2769	CABINET FRONT-BE4A			
4-b	610 339 2813	DOOR-BE4A			
5	645 069 2185	BADGE,SANYO*43.5X10L43.5			
6	610 339 2769	CABINET BACK-BE4A			
7	652 002 0634	REMOCON,JXPSG			
	1AA6P1P5576-A	INSTRUCTION MANUAL-BE4B-A			

Chassis Electrical Parts List

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by a ⚠ mark in this parts list and the circuit diagram show components whose value have special significance to product safety. It is particularly recommended that only parts specified on the following parts list be used for components replacement pointed out by the mark.

Note: Parts order must contain Service Ref. No., Part No., and descriptions. The main PCB unit will be supplied without tuner and flyback transformer. They should be ordered separately.

Ref. No.	Part No.	Description

NOTES:

Read description in the Capacitor and Resistor as follows:

CAPACITOR

CERAMIC 100P K 50V

- 50V — Rated Voltage
- K — Tolerance Symbols:

Less than 10pF

A : Not specified	B : ±0.1pF	C : ±0.25pF
D : ±0.5pF	F : ±1PF	G : ±2pF
R : ±0.25-0pF	S : ±0-0.25pF	E : +0-1pF

More than 10pF

A : Not specified	B : ±0.1%	C : ±0.25%
D : ±0.5%	F : ±1%	G : ±2%
H : ±3%	J : ±5%	K : ±10%
L : ±15%	M : ±20%	N : ±30%
P : +100-0%	Q : +30-10%	T : +50-10%
U : +75-10%	V : +20-10%	W : +100-10%
X : +40-20%	Y : +150-10%	Z : +80-20%

- 100P — Rated value: P=pico farad, U=micro farad
- CERAMIC — Material:

CERAMIC	Ceramic
MT-PAPER	Metallized Paper
POLYESTER	Polyester
MT-POLYEST	Metallized Polyester
POLYPRO	Polypropylene
MT-POLYPRO	Metallized Polypropylene
COMPO FILM	Composite film
MT-COMPO	Metallized Composite
STYRENE	Styrene
TA-SOLID	Tantalum Solid
AL-SOLID	Aluminium Solid
ELECT	Electrolytic
NP-ELECT	Non-polarised Electrolytic
OS-SOLID	Aluminium Solid with Organic Semiconductive Electrolytic
DL-ELECT	Double Layered Electrolytic

RESISTOR

CARBON 4.7K J A 1/4W

- 1/4W — Rated Wattage
- A — Performance Symbols:
  A: General B: Non flammable Z: Low noise
  Other: Temperature coefficient
- J — Tolerance Symbols:
  A: ±0.05% B: ±0.1% C: ±0.25% D: ±0.5%
  F: ±1% G: ±2% J: ±5% K: ±10%
  M: ±20% P: +5-15%
- 4.7K — Rated value, ohms:
  K: 1,000, M: 1,000,000
- CARBON — Material:

CARBON	Carbon
MT-FILM	Metal Film
OXIDE-MT	Oxide Metal Film
SOLID	Composition
MT-GLAZE	Metal Glaze
WIRE WOUND	Wire Wound
CERAMIC RES.	Ceramic
FUSIBLE RES.	Fusible

Ref. No.	Part No.	Description

OUT OF CIRCUIT BOARD

PICTURE TUBE

⚠Q901	4140147601	CRT ASSY A51QGD991X200(M)
Q901B1	6102904154	DY SPACER-F8LZ
	6102337891	DY SPACER E2HA
	6101170154	DY SPACER-D4AK
Q901B2	6102904154	DY SPACER-F8LZ
	6102337891	DY SPACER E2HA
	6101170154	DY SPACER-D4AK
Q901B3	6102904154	DY SPACER-F8LZ
	6102337891	DY SPACER E2HA
	6101170154	DY SPACER-D4AK

COIL

⚠L901	6450837616	ASSY,COIL,DEGAUSSING

MISCELLANEOUS

SP901	6520014831	SPEAKER,8
	6520018174	SPEAKER,8
SP902	6520014831	SPEAKER,8
	6520018174	SPEAKER,8
⚠W901	6450956287	CORD,POWER-2.0MK-W-A5063
	6450979460	CORD,POWER-2.0MK-P11383
W902	6102815177	ASSY,WIRE GND CONNECTOR F
	6103376974	ASSY WIRE,GND CONECTOR BB

6103404264 ASSY,PWB,MAIN BE4B 1AA0B10S270DA

TRANSISTOR

Q002	4052203115	TR ISA1235AC1E
	4052203016	TR ISA1235AC1F
	4051648016	TR KTA1504S-GR-RTK
	4051345925	TR 2SA1037AK-T146-R
	4051472215	TR 2SA1037AK-S-T146
	4051739615	TR 2SA1235A1E
	4051739714	TR 2SA1235A1F
Q1000	4052203115	TR ISA1235AC1E
	4052203016	TR ISA1235AC1F
	4051648016	TR KTA1504S-GR-RTK
	4051345925	TR 2SA1037AK-T146-R
	4051472215	TR 2SA1037AK-S-T146
	4051739615	TR 2SA1235A1E
	4051739714	TR 2SA1235A1F
Q1001	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q1002	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R

Ref. No.	Part No.	Description
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q111	4052187712	TR KTC3879S-Y
	4050159721	TR 2SC2814-F4-TB
Q201	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q202	4050235009	TR 2SD400-E-MP
Q203	4050235009	TR 2SD400-E-MP
Q204	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q205	4050235009	TR 2SD400-E-MP
Q206	4050235009	TR 2SD400-E-MP
Q431	4050180517	TR 2SC3332-R
	4050180606	TR 2SC3332-S
Q432A	4060182102	TR TT2190LS-YB11
Q439	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q440	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q461	4052197810	TR KTA1046-Y-U/P
	4050647307	TR 2SB1274-Q-RA
	4050647406	TR 2SB1274-R-RA
Q462	4051413317	TR KTC3198-GR-T
	4050118401	TR 2SC1740S-Q
	4050118500	TR 2SC1740S-R
	4050118609	TR 2SC1740S-S
	4050122002	TR 2SC1815-GR
	4050122101	TR 2SC1815-O
	4050207501	TR 2SC945A-PA
	4050207709	TR 2SC945A-QA
	4050207907	TR 2SC945A-RA
Q491	4052203115	TR ISA1235AC1E
	4052203016	TR ISA1235AC1F
	4051648016	TR KTA1504S-GR-RTK
	4051345925	TR 2SA1037AK-T146-R
	4051472215	TR 2SA1037AK-S-T146
	4051739615	TR 2SA1235A1E
	4051739714	TR 2SA1235A1F
Q501	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q631	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q632	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q683	4052197711	TR KTB985-B-AT/P
	4050890000	TR 2SA1707-S
	4050890109	TR 2SA1707-T
	4050096907	TR 2SB985-S
	4050097013	TR 2SB985-T
Q684	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q801	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q802	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q886	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S

INTEGRATED CIRCUIT

IC001	4096827701	IC LA42205-E
IC1201	4090512722	IC TC4052BF(EL)
IC201	4106666009	IC LV76123 2F59V9-MPB-E
IC201A	4106664807	IC LV76123 2F
IC201	4106667709	IC LV76113 2C59V9

Ref. No.	Part No.	Description
IC501	4096697908	IC LA78141-E
IC601	4105643100	IC STR-W6754(LF2003)
IC801	4104958007	IC AT24C16A-10PU-2.7
	4106374607	IC LE24C162-E
	4094594506	IC 24LC16B/P
CAPACITOR		
C001	4041047307	CERAMIC 0.068U K 50V
	4040915102	CERAMIC 0.068U K 50V
	4033077018	CERAMIC 0.068U K 16V
	4033709117	CERAMIC 0.068U K 50V
C002	4041046102	CERAMIC 3300P K 50V
	4040913900	CERAMIC 3300P K 50V
	4031552210	CERAMIC 3300P K 50V
C003	4041047307	CERAMIC 0.068U K 50V
	4040915102	CERAMIC 0.068U K 50V
	4033077018	CERAMIC 0.068U K 16V
	4033709117	CERAMIC 0.068U K 50V
C004	4041046102	CERAMIC 3300P K 50V
	4040913900	CERAMIC 3300P K 50V
	4031552210	CERAMIC 3300P K 50V
C005	4041080403	ELECT 100U M 16V
	4032112918	ELECT 100U M 16V
C006	4040969600	ELECT 10U M 16V
	4040842705	ELECT 10U M 16V
	4040970200	ELECT 10U M 50V
	4040843900	ELECT 10U M 50V
C007	4040972402	ELECT 1K U M 25V
	4040843405	ELECT 1000U M 25V
	4031977340	ELECT 1000U M 25V
C009	4040970002	ELECT 100U M 25V
	4040892700	ELECT 100U M 25V
	4040990000	ELECT 100U M 35V
	4040873204	ELECT 100U M 35V
C011	4011506011	MT-GLAZE 0.000 ZA 1/10W
C012	4041080403	ELECT 100U M 16V
	4032112918	ELECT 100U M 16V
C100	4040969808	ELECT 22U M 16V
	4040885702	ELECT 22U M 16V
	4040973201	ELECT 22U M 50V
	4040873006	ELECT 22U M 50V
C1000	4040988106	ELECT 220U M 10V
	4040870500	ELECT 220U M 10V
	4040972006	ELECT 220U M 16V
	4040843009	ELECT 220U M 16V
	4032006722	ELECT 220U M 16V
C1001	4040970200	ELECT 10U M 50V
	4040843900	ELECT 10U M 50V
	4031957748	ELECT 10U M 50V
C1002	4040970200	ELECT 10U M 50V
	4040843900	ELECT 10U M 50V
	4031957748	ELECT 10U M 50V
C1003	4041140206	CERAMIC 1U Z 16V
	4032070317	CERAMIC 1U Z 16
	4032789615	CERAMIC 1U Z 16V
C1004	4040970200	ELECT 10U M 50V
	4040843900	ELECT 10U M 50V
	4031957748	ELECT 10U M 50V
C1005	4040970200	ELECT 10U M 50V
	4040843900	ELECT 10U M 50V
	4031957748	ELECT 10U M 50V
C1006	4041140206	CERAMIC 1U Z 16V
	4032070317	CERAMIC 1U Z 16V
	4032789615	CERAMIC 1U Z 16V
C1007	4041044900	CERAMIC 0.1U K 50V
	4040912606	CERAMIC 0.1U K 50V
	4033670417	CERAMIC 0.1U K 50V
	4033053517	CERAMIC 0.1U Z 50V
C1008	4041044900	CERAMIC 0.1U K 50V
	4040912606	CERAMIC 0.1U K 50V
	4033670417	CERAMIC 0.1U K 50V
	4033053517	CERAMIC 0.1U Z 50V
C1009	4040987901	ELECT 100U M 10V
	4040854203	ELECT 100U M 10V
	4040971801	ELECT 100U M 16V
	4040842804	ELECT 100U M 16V
	4040970002	ELECT 100U M 25V
	4040892700	ELECT 100U M 25V
C101	4040988403	ELECT 470U M 10V
	4040842606	ELECT 470U M 10V
	4040988700	ELECT 470U M 16V
	4040843306	ELECT 470U M 16V
C1010	4041044108	CERAMIC 47P J 50V
	4040948605	CERAMIC 47P J 50V
	4031572911	CERAMIC 47P J 50V
C1013	4040988304	ELECT 47U M 10V
	4040842507	ELECT 47U M 10V
	4040969907	ELECT 47U M 16V
	4040843207	ELECT 47U M 16V
C1015	4041044108	CERAMIC 47P J 50V
	4040948605	CERAMIC 47P J 50V
	4031572911	CERAMIC 47P J 50V
C102	4040973607	ELECT 47U M 50V
	4040844303	ELECT 47U M 50V
	4032001727	ELECT 47U M 50V
C105	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C106	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C107	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C108	4040948902	CERAMIC 56P J 50V
	4031573116	CERAMIC 56P J 50V
C1101	4011506011	MT-GLAZE 0.000 ZA 1/10W
C1102	4040970200	ELECT 10U M 50V
	4040843900	ELECT 10U M 50V
	4031957748	ELECT 10U M 50V
C1103	4040970200	ELECT 10U M 50V
	4040843900	ELECT 10U M 50V
	4031957748	ELECT 10U M 50V
C1203	4040987901	ELECT 100U M 10V
	4040854203	ELECT 100U M 10V
	4040971801	ELECT 100U M 16V
	4040842804	ELECT 100U M 16V
	4040970002	ELECT 100U M 25V
	4040892700	ELECT 100U M 25V
C1204	4041044900	CERAMIC 0.1U K 50V
	4040912606	CERAMIC 0.1U K 50V
	4033670417	CERAMIC 0.1U K 50V
C1902	4040969808	ELECT 22U M 16V
	4040885702	ELECT 22U M 16V
	4040973201	ELECT 22U M 50V
	4040873006	ELECT 22U M 50V
C200	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C201	4040886808	POLYESTER 0.047U K 63V
	4030619835	POLYESTER 0.047U J 50V
	4031791005	POLYESTER 0.047U J 50V
	4031790909	POLYESTER 0.047U K 50V
	4032252703	MT-COMPO 0.047U J 50V

Ref. No.	Part No.	Description			Ref. No.	Part No.	Description		
C202	4041046102	CERAMIC	3300P	K 50V		4031554214	CERAMIC	15P	J 50V
	4040913900	CERAMIC	3300P	K 50V	C225	4032750318	POLYESTER	0.47U	J 50V
	4031552210	CERAMIC	3300P	K 50V		4032560808	MT-COMPO	0.47U	J 50V
C203	4041113705	CERAMIC	15P	J 50V	C226	4041046706	CERAMIC	0.047U	K 50V
	4040947004	CERAMIC	15P	J 50V		4040914501	CERAMIC	0.047U	K 50V
	4031554214	CERAMIC	15P	J 50V	C227	4040987901	ELECT	100U	M 10V
C204	4032750318	POLYESTER	0.47U	J 50V		4040854203	ELECT	100U	M 10V
	4032560808	MT-COMPO	0.47U	J 50V	C228	4041032907	CERAMIC	0.01U	K 50V
C205	4041033003	CERAMIC	0.022U	K 50V		4040901204	CERAMIC	0.01U	K 50V
	4040901501	CERAMIC	0.022U	K 50V		4032152211	CERAMIC	0.01U	K 50V
	4032844314	CERAMIC	0.022U	K 50V	C229	4031818306	POLYESTER	0.1U	J 50V
C207	4030595228	POLYESTER	0.022U	J 50V		4040984009	MT-POLYEST	0.1U	J 63V
	4031792507	POLYESTER	0.022U	J 50V		4040852902	MT-POLYEST	0.1U	J 63V
	4031792408	POLYESTER	0.022U	K 50V		4032378007	MT-COMPO	0.1U	J 50V
	4032499207	MT-COMPO	0.022U	J 50V	C230	4041032907	CERAMIC	0.01U	K 50V
C208	4033145915	CERAMIC	0.47U	K 16V		4040901204	CERAMIC	0.01U	K 50V
	4033363517	CERAMIC	0.47U	K 16V		4032152211	CERAMIC	0.01U	K 50V
C209	4041044900	CERAMIC	0.1U	K 50V	C231	4040988106	ELECT	220U	M 10V
	4040912606	CERAMIC	0.1U	K 50V		4040870500	ELECT	220U	M 10V
	4033670417	CERAMIC	0.1U	K 50V	C232	4031818306	POLYESTER	0.1U	J 50V
	4033053517	CERAMIC	0.1U	Z 50V		4040984009	MT-POLYEST	0.1U	J 63V
C210	4041044900	CERAMIC	0.1U	K 50V		4040852902	MT-POLYEST	0.1U	J 63V
	4040912606	CERAMIC	0.1U	K 50V		4032378007	MT-COMPO	0.1U	J 50V
	4033670417	CERAMIC	0.1U	K 50V	C233	4041045204	CERAMIC	1500P	K 50V
	4033053517	CERAMIC	0.1U	Z 50V		4040901303	CERAMIC	1500P	K 50V
C211	4041044900	CERAMIC	0.1U	K 50V		4031552111	CERAMIC	1500P	K 50V
	4040912606	CERAMIC	0.1U	K 50V	C234	4041032907	CERAMIC	0.01U	K 50V
	4033670417	CERAMIC	0.1U	K 50V		4040901204	CERAMIC	0.01U	K 50V
	4033053517	CERAMIC	0.1U	Z 50V		4032152211	CERAMIC	0.01U	K 50V
C212	4041044900	CERAMIC	0.1U	K 50V	C235	4040987901	ELECT	100U	M 10V
	4040912606	CERAMIC	0.1U	K 50V		4040854203	ELECT	100U	M 10V
	4033670417	CERAMIC	0.1U	K 50V		4040971801	ELECT	100U	M 16V
	4033053517	CERAMIC	0.1U	Z 50V		4040842804	ELECT	100U	M 16V
C213	4041044900	CERAMIC	0.1U	K 50V		4040970002	ELECT	100U	M 25V
	4040912606	CERAMIC	0.1U	K 50V		4040892700	ELECT	100U	M 25V
	4033670417	CERAMIC	0.1U	K 50V	C236	4041046201	CERAMIC	0.033U	K 50V
	4033053517	CERAMIC	0.1U	Z 50V		4040914006	CERAMIC	0.033U	K 50V
C214	4041102600	ELECT	10U	M 16V		4032815017	CERAMIC	0.033U	K 25V
	4041109906	ELECT	10U	M 50V		4030731210	CERAMIC	0.033U	K 50V
	4032113519	ELECT	10U	M 50V		4033580112	CERAMIC	0.033U	K 50V
C215	4041080403	ELECT	100U	M 16V	C237	4040973003	ELECT	2.2U	M 50V
	4032112918	ELECT	100U	M 16V		4040844006	ELECT	2.2U	M 50V
C216	4041032907	CERAMIC	0.01U	K 50V	C239	4041140206	CERAMIC	1U	Z 16V
	4040901204	CERAMIC	0.01U	K 50V		4032070317	CERAMIC	1U	Z 16V
	4032152211	CERAMIC	0.01U	K 50V		4032789615	CERAMIC	1U	Z 16V
C217	4041032907	CERAMIC	0.01U	K 50V	C243	4041040209	CERAMIC	100P	J 50V
	4040901204	CERAMIC	0.01U	K 50V		4040946403	CERAMIC	100P	J 50V
	4032152211	CERAMIC	0.01U	K 50V		4031573611	CERAMIC	100P	J 50V
C218	4041080403	ELECT	100U	M 16V	C244	4041043804	CERAMIC	33P	J 50V
	4032112918	ELECT	100U	M 16V		4040948100	CERAMIC	33P	J 50V
C219	4040969600	ELECT	10U	M 16V		4031551619	CERAMIC	33P	J 50V
	4040842705	ELECT	10U	M 16V	C246	4041043804	CERAMIC	33P	J 50V
	4040970200	ELECT	10U	M 50V		4040948100	CERAMIC	33P	J 50V
	4040843900	ELECT	10U	M 50V		4031551619	CERAMIC	33P	J 50V
C220	4041032907	CERAMIC	0.01U	K 50V	C355	4031032257	CERAMIC	100P	K 50V
	4040901204	CERAMIC	0.01U	K 50V	C401	4011506011	MT-GLAZE	0.000	ZA 1/10W
	4032152211	CERAMIC	0.01U	K 50V	C420	4040775102	MT-POLYPRO	8900P	H 1.5K
C221	4040969600	ELECT	10U	M 16V		4041178506	MT-POLYPRO	8900P	H 1.5V
	4040842705	ELECT	10U	M 16V		4034679310	MT-POLYPRO	8900P	H 1.5K
C222	4040969600	ELECT	10U	M 16V	C423	4040775003	MT-POLYPRO	8600P	H 1.5K
	4040842705	ELECT	10U	M 16V		4041020300	MT-POLYPRO	8600P	H 1.5K
	4040970200	ELECT	10U	M 50V		4033438512	MT-POLYPRO	8600P	H 1.5K
	4040843900	ELECT	10U	M 50V	C424	4040869504	POLYPRO	0.02U	J 400V
C223	4040970101	ELECT	1U	M 50V		4033439410	POLYPRO	0.02U	J 400V
	4040843801	ELECT	1U	M 50V	C425	4030834911	POLYPRO	0.027U	J 400V
C224	4041113705	CERAMIC	15P	J 50V	C432	4041135301	CERAMIC	1000P	K 500V
	4040947004	CERAMIC	15P	J 50V		4031149519	CERAMIC	1000P	K 500V

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
C433	4041135301	CERAMIC 1000P K 500V		4032889107	POLYESTER 0.22U K 100V
	4031149519	CERAMIC 1000P K 500V		4033407112	MT-COMPO 0.22U J 100V
C434	4041085705	ELECT 330U M 35V	⚠C601	4040881704	MT-POLYEST 0.22U K 250V
	4041075201	ELECT 330U M 35V		4040888802	MT-POLYEST 0.22U M 275V
	4032003632	ELECT 330U M 35V		4040941804	MT-POLYEST 0.22U K 275V
C437	4040988908	ELECT 22U M 25V	⚠C602	4040796503	MT-POLYEST 0.068U M 250V
	4040874706	ELECT 22U M 25V		4040920700	MT-POLYEST 0.068U M 275V
	4040973201	ELECT 22U M 50V		4041144501	MT-POLYEST 0.068U K 275V
	4040873006	ELECT 22U M 50V	C603	4041078400	CERAMIC 1000P K 1K
C438	4041102600	ELECT 10U M 16V		4040846307	CERAMIC 1000P K 1K
	4041109906	ELECT 10U M 50V		4030766707	CERAMIC 1000P K 1K
	4032113519	ELECT 10U M 50V	C604	4041078400	CERAMIC 1000P K 1K
C439	4041036707	CERAMIC 0.47U K 16V		4040846307	CERAMIC 1000P K 1K
	4041109807	CERAMIC 0.47U K 16V		4030766707	CERAMIC 1000P K 1K
	4033145915	CERAMIC 0.47U K 16V	C609	4041048304	ELECT 220U M 400V
	4033363517	CERAMIC 0.47U K 16V		4041077403	ELECT 150U M 400V
C440A	4041137107	MT-POLYEST 0.47U J 250V		4041084401	ELECT 220U M 400V
	4030666106	MT-POLYEST 0.47U J 250V	C610	4031389925	POLYESTER 470P J 50V
	4034335008	MT-POLYEST 0.47U J 250V		4032769102	POLYESTER 470P J 50V
	4041194407	MT-POLYPRO 0.47U J 250V	C611	4040970101	ELECT 1U M 50V
C441	4033467324	MT-POLYPRO 0.36U J 250V		4040843801	ELECT 1U M 50V
	4033727111	MT-POLYPRO 0.36U J 250V		4032001123	ELECT 1U M 50V
C463	4030617504	POLYESTER 4700P J 50V	C612	4030572130	POLYESTER 0.1U J 50V
	4031791203	POLYESTER 4700P J 50V		4031818306	POLYESTER 0.1U J 50V
C465	4031589127	MT-POLYEST 2.2U K 100V		4030573107	POLYESTER 0.1U K 50V
	4034398528	MT-POLYEST 2.2U K 100V		4031818207	POLYESTER 0.1U K 50V
C468	4040973201	ELECT 22U M 50V		4032378007	MT-COMPO 0.1U J 50V
	4040873006	ELECT 22U M 50V	C613	4040852407	POLYESTER 0.01U J 63V
	4032001529	ELECT 22U M 50V		4030569704	POLYESTER 0.01U J 50V
C469	4040970200	ELECT 10U M 50V		4031789309	POLYESTER 0.01U J 50V
	4040843900	ELECT 10U M 50V		4032462201	MT-COMPO 0.01U J 50V
	4031957748	ELECT 10U M 50V	C615	4041098002	ELECT 47U M 35V
C470	4030569704	POLYESTER 0.01U J 50V		4032118217	ELECT 47U M 35V
	4031789309	POLYESTER 0.01U J 50V	C616	4041117703	CERAMIC 1000P K 2K
	4031793801	POLYESTER 0.01U K 50V		4041166800	CERAMIC 1000P K 2K
	4032462201	MT-COMPO 0.01U J 50V		4040846505	CERAMIC 1000P K 2K
C471	4040565307	NP-ELECT 2.2U M 100V		4032903962	CERAMIC 1000P K 2K
	4041089000	NP-ELECT 2.2U M 100V	C626	4040735106	CERAMIC 470P K 250V
	4040849902	NP-ELECT 2.2U M 100V		4040714507	CERAMIC 470P K 400V
C482	4041107001	ELECT 0.47U M 160V		4040978909	CERAMIC 470P K 400V
C486	4040981602	ELECT 33U M 250V	⚠C627	4040733904	CERAMIC 1000P K 250V
	4034501512	ELECT 33U M 250V		4040732105	CERAMIC 1000P M 250V
	4034501522	ELECT 33U M 250V		4040713302	CERAMIC 1000P M 400V
C491	4041136803	CERAMIC 680P K 500V		4040978503	CERAMIC 1000P K 400V
	4034164915	CERAMIC 680P K 500V		4041113903	CERAMIC 1000P M 400V
C501	4041174409	ELECT 22U M 16V		4041039104	CERAMIC 1000P M 400V
	4041159307	ELECT 22U M 50V	⚠C628	4040733904	CERAMIC 1000P K 250V
	4032114516	ELECT 22U M 50V		4040732105	CERAMIC 1000P M 250V
C502	4041153800	POLYESTER 0.1U J 100		4040713302	CERAMIC 1000P M 400V
	4030641212	POLYESTER 0.1U K 100V		4040978503	CERAMIC 1000P K 400V
	4032769726	POLYESTER 0.1U K 100V		4041113903	CERAMIC 1000P M 400V
	4032564826	MT-COMPO 0.1U J 100V		4041039104	CERAMIC 1000P M 400V
C503	4041102600	ELECT 10U M 16V	⚠C629	4040735106	CERAMIC 470P K 250V
	4041109906	ELECT 10U M 50V		4040714507	CERAMIC 470P K 400V
	4032113519	ELECT 10U M 50V		4040978909	CERAMIC 470P K 400V
C504	4041157303	ELECT 220U M 35V	C631	4041170104	CERAMIC 1000P K 1K
	4032114427	ELECT 220U M 35V		4040846307	CERAMIC 1000P K 1K
C505	4041165407	ELECT 3.3U M 50V		4032719622	CERAMIC 1000P K 1K
	4032115919	ELECT 3.3U M 50V	C632	4041120604	CERAMIC 470P K 1K
C506	4041064205	ELECT 1000U M 35V		4041170401	CERAMIC 470P K 1K
	4032112532	ELECT 1000U M 35V		4032475023	CERAMIC 470P K 1K
C507	4041135202	CERAMIC 3300P K 50V	C633	4041120604	CERAMIC 470P K 1K
	4031041922	CERAMIC 3300P K 50V		4041170401	CERAMIC 470P K 1K
C508	4031352919	CERAMIC 100P K 500V		4032475023	CERAMIC 470P K 1K
C509	4041063703	ELECT 2200U M 25V	C634	4041120604	CERAMIC 470P K 1K
	4032115127	ELECT 2200U M 25V		4041170401	CERAMIC 470P K 1K
C510	4041160105	POLYESTER 0.22U J 100		4032475023	CERAMIC 470P K 1K

Ref. No.	Part No.	Description
C635	4041036301	CERAMIC 0.33U K 16V
	4032794312	CERAMIC 0.33U K 16V
	4034015712	CERAMIC 0.33U K 16V
C636	4041102600	ELECT 10U M 16V
	4041109906	ELECT 10U M 50V
	4032113519	ELECT 10U M 50V
C637	4041044900	CERAMIC 0.1U K 50V
	4040912606	CERAMIC 0.1U K 50V
	4033670417	CERAMIC 0.1U K 50V
	4033053517	CERAMIC 0.1U Z 50V
C641	4040739005	ELECT 220U M 160V
	4040973706	ELECT 220U M 160V
C643	4040980506	ELECT 1000U M 35
	4040873402	ELECT 1000U M 35V
	4032000146	ELECT 1000U M 35V
C644	4041063901	ELECT 1000U M 25V
	4031904702	ELECT 1000U M 25V
C645	4040989103	ELECT 2200U M 25V
	4040854500	ELECT 2200U M 25V
	4031943840	ELECT 2200U M 25V
C689	4040969907	ELECT 47U M 16V
	4040843207	ELECT 47U M 16V
C691	4040970101	ELECT 1U M 50V
	4040843801	ELECT 1U M 50V
	4032001123	ELECT 1U M 50V
C801	4040989509	ELECT 0.33U M 50V
	4040875307	ELECT 0.33U M 50V
C804	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C805	4040970101	ELECT 1U M 50V
	4040843801	ELECT 1U M 50V
C807	4040987901	ELECT 100U M 10V
	4040854203	ELECT 100U M 10V
	4040971801	ELECT 100U M 16V
	4040842804	ELECT 100U M 16V
	4040970002	ELECT 100U M 25V
	4040892700	ELECT 100U M 25V
RESISTOR		
R001	4012567219	MT-GLAZE 18K JA 1/10W
R002	4012566014	MT-GLAZE 27K JA 1/10W
R003	4012567219	MT-GLAZE 18K JA 1/10W
R004	4012566014	MT-GLAZE 27K JA 1/10W
R005	4012556510	MT-GLAZE 100 JA 1/10W
R006	4012565918	MT-GLAZE 2.7K JA 1/10W
R007	4011624012	MT-GLAZE 560 JA 1/10W
R013	4010275908	CARBON 68K JA 1/6W
R100	4011506011	MT-GLAZE 0.000 ZA 1/10W
R1000	4012562719	MT-GLAZE 75 JA 1/10W
R1002	4011506110	MT-GLAZE 2.2K JA 1/10W
R1003	4011506110	MT-GLAZE 2.2K JA 1/10W
R1004	4011624012	MT-GLAZE 560 JA 1/10W
R1005	4011624012	MT-GLAZE 560 JA 1/10W
R1008	4012562719	MT-GLAZE 75 JA 1/10W
R1009	4012562719	MT-GLAZE 75 JA 1/10W
R1010	4012562719	MT-GLAZE 75 JA 1/10W
R1011	4012566311	MT-GLAZE 47K JA 1/10W
R1012	4012566311	MT-GLAZE 47K JA 1/10W
R1013	4012562719	MT-GLAZE 75 JA 1/10W
R1014	4011505816	MT-GLAZE 100K JA 1/10W
R1015	4011505816	MT-GLAZE 100K JA 1/10W
R1016	4011505816	MT-GLAZE 100K JA 1/10W
R1018	4012562917	MT-GLAZE 150 JA 1/10W
R1019	4010247004	CARBON 1K JA 1/6W
R102	4012566618	MT-GLAZE 68K JA 1/10W
R1020	4011506110	MT-GLAZE 2.2K JA 1/10W
R1021	4011505816	MT-GLAZE 100K JA 1/10W
R1022	4012567318	MT-GLAZE 6.8K JA 1/10W
R1024	4012565918	MT-GLAZE 2.7K JA 1/10W
R1025	4011506110	MT-GLAZE 2.2K JA 1/10W
R1026	4010269600	CARBON 470 JA 1/6W
R1027	4011505816	MT-GLAZE 100K JA 1/10W
R1028	4010269600	CARBON 470 JA 1/6W
R1029	4011505816	MT-GLAZE 100K JA 1/10W
R103	4012567219	MT-GLAZE 18K JA 1/10W
R1034	4011505816	MT-GLAZE 100K JA 1/10W
R1041	4012562917	MT-GLAZE 150 JA 1/10W
R1042	4011506110	MT-GLAZE 2.2K JA 1/10W
R105	4012556510	MT-GLAZE 100 JA 1/10W
R106	4012556510	MT-GLAZE 100 JA 1/10W
R108	4010618002	OXIDE-MT 39K JA 1W
R109	4011624111	MT-GLAZE 5.6K JA 1/10W
R110	4011506219	MT-GLAZE 1K JA 1/10W
R1101	4011624012	MT-GLAZE 560 JA 1/10W
R1102	4012566311	MT-GLAZE 47K JA 1/10W
R1103	4011624012	MT-GLAZE 560 JA 1/10W
R1104	4012566311	MT-GLAZE 47K JA 1/10W
R111	4012564119	MT-GLAZE 56 JA 1/10W
R112	4011523216	MT-GLAZE 330 JA 1/10W
R113	4010272105	CARBON 56 JA 1/6W
R1901	4012563617	MT-GLAZE 15K JA 1/10W
R1902	4012567615	MT-GLAZE 3.9K JA 1/10W
R1903	4011622810	MT-GLAZE 1.8K JA 1/10W
R1904	4011506219	MT-GLAZE 1K JA 1/10W
R1905	4012566915	MT-GLAZE 680 JA 1/10W
R1906	4011623619	MT-GLAZE 470 JA 1/10W
R1907	4011623619	MT-GLAZE 470 JA 1/10W
R1908	4011506110	MT-GLAZE 2.2K JA 1/10W
R1909	4010246700	CARBON 100 JA 1/6W
R1911	4010257409	CARBON 220 JA 1/6W
R1912	4011622711	MT-GLAZE 180 JA 1/10W
R1913	4011622919	MT-GLAZE 220 JA 1/10W
R205	4011623015	MT-GLAZE 22K JA 1/10W
R207	4011505915	MT-GLAZE 10K JA 1/10W
R208	4012566212	MT-GLAZE 270 JA 1/10W
R209	4011624012	MT-GLAZE 560 JA 1/10W
R210	4011624012	MT-GLAZE 560 JA 1/10W
R211	4011506011	MT-GLAZE 0.000 ZA 1/10W
R215	4012560319	MT-GLAZE 820 JA 1/10W
R216	4011523216	MT-GLAZE 330 JA 1/10W
R217	4010674107	OXIDE-MT 33 JA 2W
R218	4012556510	MT-GLAZE 100 JA 1/10W
R219	4010665006	OXIDE-MT 22 JA 2W
R220	4012562719	MT-GLAZE 75 JA 1/10W
R221	4012562917	MT-GLAZE 150 JA 1/10W
R222	4012566014	MT-GLAZE 27K JA 1/10W
R223	4012556510	MT-GLAZE 100 JA 1/10W
R224	4012566014	MT-GLAZE 27K JA 1/10W
R225	4010665006	OXIDE-MT 22 JA 2W
R226	4010610709	OXIDE-MT 3.9 JA 1W
R226	4010610818	OXIDE-MT 3.9 JA 1W
R227	4010210652	CARBON 56 JA 1/4W
R228	4010134156	CARBON 120 JA 1/4W
R229	4012556510	MT-GLAZE 100 JA 1/10W
R230	4012566014	MT-GLAZE 27K JA 1/10W
R231	4012561712	MT-GLAZE 33K JA 1/10W
R232	4010247707	CARBON 100K JA 1/6W
R233	4012560012	MT-GLAZE 120 JA 1/10W
R234	4012560012	MT-GLAZE 120 JA 1/10W
R235	4012560012	MT-GLAZE 120 JA 1/10W
R236	4010279005	CARBON 82K JA 1/6W
R238	4012560418	MT-GLAZE 12K JA 1/10W
R239	4012566212	MT-GLAZE 270 JA 1/10W

Ref. No.	Part No.	Description
R240	4010531301	MT-FILM 22K FA 1/6W
R241	4010257409	CARBON 220 JA 1/6W
R242	4012556817	MT-GLAZE 30K JA 1/10W
R243	4012567219	MT-GLAZE 18K JA 1/10W
R244	4012556510	MT-GLAZE 100 JA 1/10W
R245	4012556015	MT-GLAZE 1M JA 1/10W
R246	4010272105	CARBON 56 JA 1/6W
R247	4010275908	CARBON 68K JA 1/6W
R248	4010275908	CARBON 68K JA 1/6W
R250	4012567615	MT-GLAZE 3.9K JA 1/10W
R251	4012567615	MT-GLAZE 3.9K JA 1/10W
R252	4012567615	MT-GLAZE 3.9K JA 1/10W
R355	4010126953	CARBON 10K JA 1/4W
R421	4010532714	MT-FILM 3.9K FA 1/6W
R422	4010214036	CARBON 56K JA 1/4W
R423	4010214036	CARBON 56K JA 1/4W
R424	4010246938	CARBON 1K GA 1/6W
	4010247004	CARBON 1K JA 1/6W
R426	4010247400	CARBON 10K JA 1/6W
R431	4010247004	CARBON 1K JA 1/6W
R432	4011623619	MT-GLAZE 470 JA 1/10W
R433	4010071104	CARBON 1K JA 1/2W
R434	4010578019	OXIDE-MT 1 JA 1W
R435	4020979407	WIRE WOUND 6.8 KA 7W
R437	4010246700	CARBON 100 JA 1/6W
R438	4010182701	CARBON 330 JA 1/4W
R439	4011505915	MT-GLAZE 10K JA 1/10W
R440	4010275502	CARBON 6.8K JA 1/6W
R441	4010648603	OXIDE-MT 1K JA 2W
R462	4010529338	MT-FILM 15K FA 1/6W
R466	4010176156	CARBON 3.3 JA 1/4W
R470	4010498119	MT-FILM 56K FA 1/4W
R471	4010251605	CARBON 1.5K JA 1/6W
R473	4010275205	CARBON 680 JA 1/6W
R474	4020967909	FUSIBLE RES 220 J- 1/2W
	4020971302	FUSIBLE RES 220 J- 1/4W
R475	4010103102	CARBON 470 JA 1/2W
R479	4010247004	CARBON 1K JA 1/6W
R481	4010579917	OXIDE-MT 1.5 JA 1W
R482	4010079308	CARBON 150K JA 1/2W
R487	4010270507	CARBON 470K JA 1/6W
R488	4010577903	OXIDE-MT 1 JA 1W
	4010578019	OXIDE-MT 1 JA 1W
R489	4012567813	MT-GLAZE 390K JA 1/10W
R490	4010154659	CARBON 180K JA 1/4W
	4010154708	CARBON 180K JA 1/4W
R491	4012560418	MT-GLAZE 12K JA 1/10W
R492	4012560418	MT-GLAZE 12K JA 1/10W
R493	4011623619	MT-GLAZE 470 JA 1/10W
R494	4011623619	MT-GLAZE 470 JA 1/10W
R495	4010246700	CARBON 100 JA 1/6W
R496	4011623411	MT-GLAZE 39K JA 1/10W
R500	4010865802	MT-FILM 2.7K FA 1/6W
R501	4010950429	MT-FILM 47K FA 1/6W
R502	4010247400	CARBON 10K JA 1/6W
R503	4010247400	CARBON 10K JA 1/6W
R505	4010246700	CARBON 100 JA 1/6W
R506	4010535735	MT-FILM 8.2K FA 1/6W
R507	4011624111	MT-GLAZE 5.6K JA 1/10W
R508	4010531301	MT-FILM 22K FA 1/6W
R509	4010530017	MT-FILM 18K FA 1/6W
R510	4010257409	CARBON 220 JA 1/6W
R511	4010643707	OXIDE-MT 1 JA 2W
R512	4010683505	OXIDE-MT 470 JA 2W
R514	4010660308	OXIDE-MT 180 JA 2W
R515	4010660308	OXIDE-MT 180 JA 2W
⚠R601	4010088607	CARBON 220K JA 1/2W
R602	4020980106	WIRE WOUND 1.8 KA 7W
R603	4010642601	OXIDE-MT 0.56 JA 2W
R604	4010642601	OXIDE-MT 0.56 JA 2W
R607	4010169653	CARBON 27 JA 1W
R607	4010260409	CARBON 27 JA 1/6W
R609	4010246700	CARBON 100 JA 1/6W
R610	4010247004	CARBON 1K JA 1/6W
R611	4010144056	CARBON 1.5K JA 1/4W
R612	4010082605	CARBON 180K JA 1/2W
⚠R628	4020008305	SOLID 5.6M KA 1/2W
	4021103801	SOLID 5.6M KA 1/2W
	4020975706	CARBON 5.6M KA 1/2W
⚠R629	4020008305	SOLID 5.6M KA 1/2W
	4021103801	SOLID 5.6M KA 1/2W
	4020975706	CARBON 5.6M KA 1/2W
R635	4010072309	CARBON 100K JA 1/2W
R636	4010272600	CARBON 5.6K JA 1/6W
R637	4011505915	MT-GLAZE 10K JA 1/10W
R638	4011623718	MT-GLAZE 4.7K JA 1/10W
R639	4011506219	MT-GLAZE 1K JA 1/10W
R642	4010264536	CARBON 33K GA 1/6W
	4010264605	CARBON 33K JA 1/6W
R643	4010681501	OXIDE-MT 4.7 JA 2W
R645	4010145132	CARBON 15K JA 1/4W
	4010145201	CARBON 15K JA 1/4W
R646B	4021210202	WIRE WOUND 1.5 KA 5W
	4021210103	WIRE WOUND 1.5 KA 5W
R659	4010068104	CARBON 1.2 JA 1/2W
R660	4010068401	CARBON 1.5 JA 1/2W
R680	4011622810	MT-GLAZE 1.8K JA 1/10W
R681	4012566014	MT-GLAZE 27K JA 1/10W
R684	4010223038	CARBON 6.8K JA 1/4W
R685	4010146050	CARBON 150K JA 1/4W
R686	4010126953	CARBON 10K JA 1/4W
R688	4010258208	CARBON 22K JA 1/6W
R690	4010261000	CARBON 2.7K JA 1/6W
R800	4012556510	MT-GLAZE 100 JA 1/10W
R801	4012556510	MT-GLAZE 100 JA 1/10W
R802	4012556510	MT-GLAZE 100 JA 1/10W
R803	4012556510	MT-GLAZE 100 JA 1/10W
R804	4012556510	MT-GLAZE 100 JA 1/10W
R805	4012556510	MT-GLAZE 100 JA 1/10W
R806	4010246700	CARBON 100 JA 1/6W
R807	4010246700	CARBON 100 JA 1/6W
R808	4010246700	CARBON 100 JA 1/6W
R809	4010246700	CARBON 100 JA 1/6W
R810	4012556510	MT-GLAZE 100 JA 1/10W
R811	4010246700	CARBON 100 JA 1/6W
R812	4012556510	MT-GLAZE 100 JA 1/10W
R813	4012556510	MT-GLAZE 100 JA 1/10W
R815	4011623718	MT-GLAZE 4.7K JA 1/10W
R816	4011623718	MT-GLAZE 4.7K JA 1/10W
R817	4011506110	MT-GLAZE 2.2K JA 1/10W
R818	4012567219	MT-GLAZE 18K JA 1/10W
R819	4011623718	MT-GLAZE 4.7K JA 1/10W
R820	4011623718	MT-GLAZE 4.7K JA 1/10W
R823	4012567318	MT-GLAZE 6.8K JA 1/10W
R824	4012567318	MT-GLAZE 6.8K JA 1/10W
R827	4011623015	MT-GLAZE 22K JA 1/10W
R828	4011505816	MT-GLAZE 100K JA 1/10W
R829	4011505915	MT-GLAZE 10K JA 1/10W
R831	4011505915	MT-GLAZE 10K JA 1/10W
R832	4011505915	MT-GLAZE 10K JA 1/10W
R833	4011505915	MT-GLAZE 10K JA 1/10W
R835	4012556510	MT-GLAZE 100 JA 1/10W
R837	4012566311	MT-GLAZE 47K JA 1/10W
R839	4012556510	MT-GLAZE 100 JA 1/10W

Ref. No.	Part No.	Description
R840	4012564119	MT-GLAZE 56 JA 1/10W
R886	4011623015	MT-GLAZE 22K JA 1/10W
VARIABLE RESISTOR		
VR631	6450065514	VR,SEMI,2.2K N
	6450035579	VR,SEMI,2.2K N
	6450952586	VR,SEMI,2.2K N
COIL		
L201	6450038273	INDUCTOR,10U J
	6450014567	INDUCTOR,10U K
L202	6450135040	INDUCTOR,12U J
	6450082726	INDUCTOR,12U K
L431	6520001718	CORE PIPE
L432	6520010468	CORE,PIPE
L441	6450899508	COIL,LINEARITY
L461	6450055645	INDUCTOR,2200U K
	6450078361	INDUCTOR,2000U
	6520010901	INDUCTOR, 2000UH
L462	6450002229	INDUCTOR 430UH
	6450597138	INDUCTOR,438U
	6520010765	INDUCTOR,392UH
⚠L601A	6450112966	LINE FILTER
	6450176159	LINE FILTER
L604	6100785953	PIPE CORE
	6520010130	CORE,PIPE
L632	6100785953	PIPE CORE
	6520010130	CORE,PIPE
L633	6100785953	PIPE CORE
	6520010130	CORE,PIPE
L634	6100785953	PIPE CORE
	6520010130	CORE,PIPE
L635	6100785953	PIPE CORE
	6520010130	CORE,PIPE
TRANSFORMER		
T431	6450473371	TRANS,DRIVE
	6520000704	TRANS,DRIVE
⚠T471	6520022607	TRANS,FLYBACK
	6520023727	TRANS,FLYBACK
⚠T611	6450951084	TRANS,POWER,PULSE
DIODE		
D001	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4080660000	DIODE L1SS355T1G
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D002	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4080660000	DIODE L1SS355T1G
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D003	6101975711	CUTTING WIRE
D008	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4080660000	DIODE L1SS355T1G
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D100	4070996122	ZENER DIODE MTZJ10B
	4080472207	ZENER DIODE MTZJ10B-52
D1003	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D1006	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D1007	4070996122	ZENER DIODE MTZJ10B
	4080472207	ZENER DIODE MTZJ10B-52
D1008	4070996122	ZENER DIODE MTZJ10B
	4080472207	ZENER DIODE MTZJ10B-52
D101	4070996122	ZENER DIODE MTZJ10B
	4080472207	ZENER DIODE MTZJ10B-52
D102	4070639108	ZENER DIODE MTZJ6.8B
	4080478506	ZENER DIODE MTZJ6.8A
D103	4072568911	ZENER DIODE HZS33-2-TA
	4071000224	ZENER DIODE MTZJ36A
	4070562307	ZENER DIODE RD36EB1
	4080476205	ZENER DIODE MTZJ36A
D1101	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D1104	4070996122	ZENER DIODE MTZJ10B
	4080472207	ZENER DIODE MTZJ10B-52
D1901	4071166504	LED SLP-181B-51
	4080512408	LED 204HD
	4080626907	LED BT-202YX-31
D1903	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D1904	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D1905	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D1906	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D202	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D203	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D204	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D353	4070995303	ZENER DIODE MTZJ5.6B
	4080477400	ZENER DIODE MTZJ5.6B
D421	4070996924	ZENER DIODE MTZJ15A
	4080474409	ZENER DIODE MTZJ15A
D438	4070958001	DIODE ERD07-15L
	4080584306	DIODE ERD07-15
D439	4070064108	DIODE ERB44-04V1
	4080584108	DIODE ERB44-04
D461	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D464	4070995808	ZENER DIODE MTZJ7.5A
	4080478902	ZENER DIODE MTZJ7.5A
D465	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D466	4070638438	ZENER DIODE MTZJ12C T-72
	4080473402	ZENER DIODE MTZJ12C T-72
D467	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D468	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A

Ref. No.	Part No.	Description
D469	4070077405	DIODE EU1
	4080457709	DIODE EU1
D476	4070639702	ZENER DIODE MTZJ9.1C
	4080480301	ZENER DIODE MTZJ9.1C-52
D485	4070077405	DIODE EU1
	4080457709	DIODE EU1
D486	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4080660000	DIODE L1SS355T1G
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D487	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4080660000	DIODE L1SS355T1G
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D500	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D501	4070058602	DIODE ERA15-02-V1
	4080456801	DIODE ERA15-02
	4080658205	DIODE ERA15-02
D603	4070066300	DIODE ERC05-10BV1
	4070096901	DIODE RM11C
	4080457501	DIODE ERC05-10B
D604	4070066300	DIODE ERC05-10BV1
	4070096901	DIODE RM11C
	4080457501	DIODE ERC05-10B
D605	4070066300	DIODE ERC05-10BV1
	4070096901	DIODE RM11C
	4080457501	DIODE ERC05-10B
D606	4070066300	DIODE ERC05-10BV1
	4070096901	DIODE RM11C
	4080457501	DIODE ERC05-10B
D609	4080082406	DIODE 1N4148
⚠D610	4072348701	PHOTO COUPLE PC123X5YFZ
	4072303908	PHOTO COUPLE PC123Y52
	4072317707	PC TLP421F(D4-BL)
D612	4070077405	DIODE EU1
	4080457709	DIODE EU1
D613	4070077405	DIODE EU1
	4080457709	DIODE EU1
D614	4070995422	ZENER DIODE MTZJ6.2B
	4080627409	ZENER DIODE MTZJ6.2B
D631	4070098806	DIODE RU3AM
	4080584405	DIODE RU3AM
D632	4071296706	DIODE RU4YX LF-L1
	4080458706	DIODE RU4YX LF-L1
D633	4072105700	DIODE RN1Z
D634	4072105700	DIODE RN1Z
	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D685	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D686	4070995521	ZENER DIODE MTZJ6.2C
	4070572801	ZENER DIODE RD6.2EB3
	4080478308	ZENER DIODE MTZJ6.2C-52
D687	4070638923	ZENER DIODE MTZJ5.6C
	4080477608	ZENER DIODE MTZJ5.6C
D688	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4080660000	DIODE L1SS355T1G
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D801	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D802	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D803	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D804	4070996122	ZENER DIODE MTZJ10B
	4080472207	ZENER DIODE MTZJ10B-52
D805	4070996122	ZENER DIODE MTZJ10B
	4080472207	ZENER DIODE MTZJ10B-52
D807	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D808	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
MISCELLANEOUS		
⚠F601	4240059507	FUSE 250V 4A
	4230288603	FUSE 250V 4A
F601A	6450705434	HOLDER,FUSE
F601B	6450705434	HOLDER,FUSE
A101	6450904059	TUNER, U/V
A1901	6450476228	UNIT,REMOCON RECEIVER
	6450794124	UNIT,REMOCON RECEIVER
	6450820465	UNIT,REMOCON RECEIVER
K1000	6520022737	JACK,RCA-9
	6520016187	JACK,RCA-9
K1101	6520022768	JACK,RCA-3
	6520015401	JACK,RCA-3
⚠PS601	4080465407	TH PTDCA1BF4R5Q200
SW1901	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
SW1902	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
SW1903	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
SW1904	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
SW1905	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
SW1906	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
⚠SW601	6450590061	SWITCH, POWER 1P-1TX1
	6520023864	SWITCH,PUSH POWER 1P-1TX
⚠VA601	4071712008	VARISTOR ERZV14D471
	4072471300	VARISTOR SVC471D-07ABW7
X201	4210121906	SAW F TSF6376BL
	4210115202	SAW F TSF6376Y
X202	6100153547	CERAMIC TRAP
	6100152854	TRAP,CERAMIC 5.5MHZ
	6520000254	TRAP,CERAMIC 5.5MHZ
X203	6450248818	OSC,CRYSTAL 4.433619MHZ
	6450820052	OSC,CRYSTAL 4.433619MHZ

6103402437 ASSY,PWB,CRT BE4RA 1AA0B10S2700B

TRANSISTOR

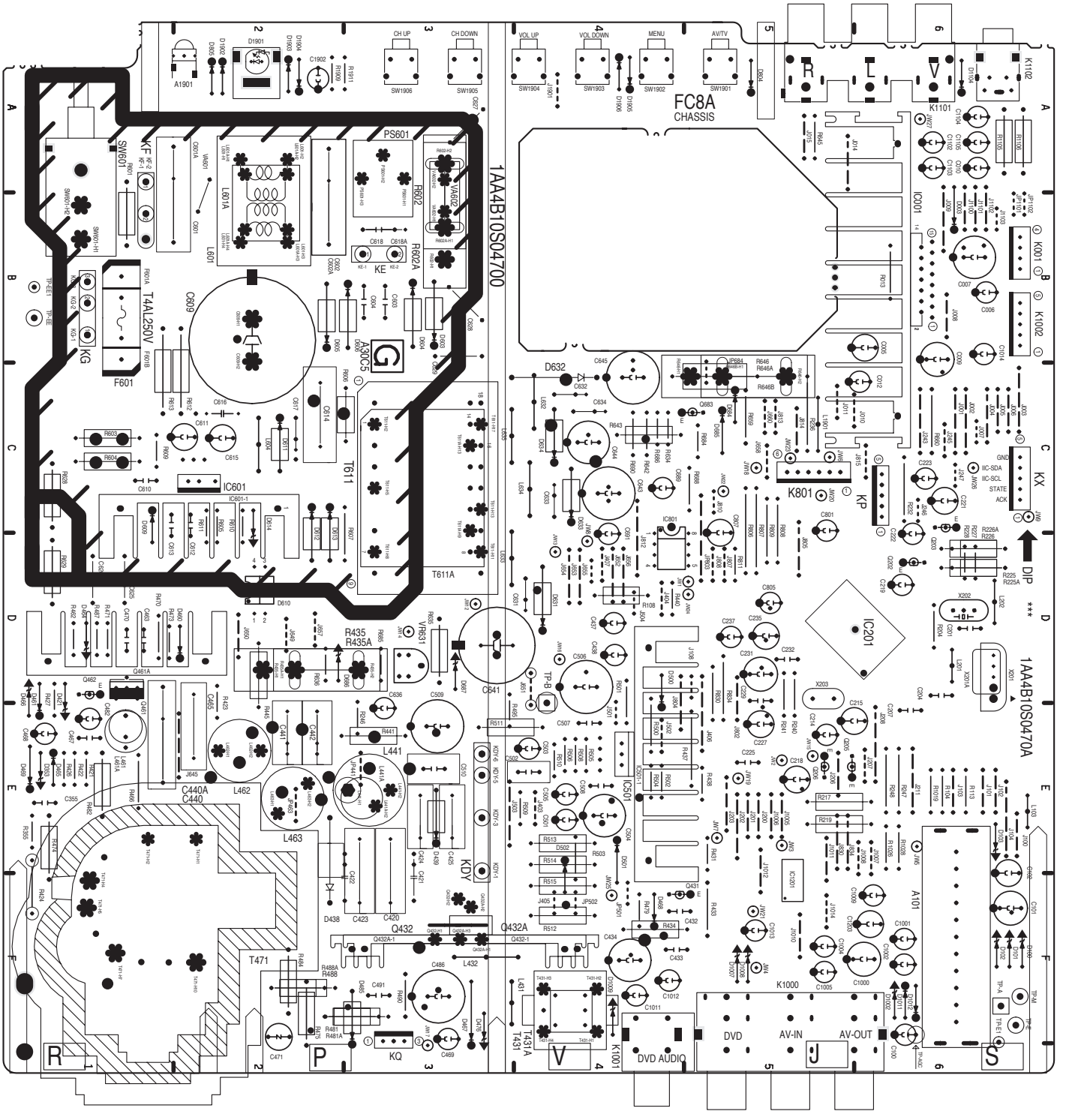
Q701	4050416507	TR 2SC2621-D-RA

Ref. No.	Part No.	Description
	4050416705	TR 2SC2621-E-RA
Q703	4050416507	TR 2SC2621-D-RA
	4050416705	TR 2SC2621-E-RA
Q705	4050416507	TR 2SC2621-D-RA
	4050416705	TR 2SC2621-E-RA
Q721	4052203115	TR ISA1235AC1E
	4052203016	TR ISA1235AC1F
	4051648016	TR KTA1504S-GR-RTK
	4051345925	TR 2SA1037AK-T146-R
	4051472215	TR 2SA1037AK-S-T146
	4051739615	TR 2SA1235A1E
	4051739714	TR 2SA1235A1F
CAPACITOR		
C703	4041046805	CERAMIC 560P K 50V
	4040914600	CERAMIC 560P K 50V
	4031576711	CERAMIC 560P K 50V
C705	4041046805	CERAMIC 560P K 50V
	4040914600	CERAMIC 560P K 50V
	4031576711	CERAMIC 560P K 50V
C707	4040914105	CERAMIC 390P K 50V
	4031576513	CERAMIC 390P K 50V
C708	4041117703	CERAMIC 1000P K 2K
	4041166800	CERAMIC 1000P K 2K
	4032903962	CERAMIC 1000P K 2K
C710	4041093106	ELECT 10U M 250V
	4034517810	ELECT 10U M 250V
RESISTOR		
R702	4011622711	MT-GLAZE 180 JA 1/10W
R704	4012559016	MT-GLAZE 82 JA 1/10W
R705	4011622711	MT-GLAZE 180 JA 1/10W
R706	4011622711	MT-GLAZE 180 JA 1/10W
R707	4012559016	MT-GLAZE 82 JA 1/10W
R711	4010654505	OXIDE-MT 12K JA 2W
R712	4010654505	OXIDE-MT 12K JA 2W
R713	4010654505	OXIDE-MT 12K JA 2W
R715	4010091508	CARBON 2.7K JA 1/2W
R716	4010091508	CARBON 2.7K JA 1/2W
R717	4010091508	CARBON 2.7K JA 1/2W
R723	4011523216	MT-GLAZE 330 JA 1/10W
R724	4011622414	MT-GLAZE 1.2K JA 1/10W
R732	4010246403	CARBON 10 JA 1/6W
R743	4011505915	MT-GLAZE 10K JA 1/10W
COIL		
L702	6450079689	INDUCTOR,150U K
MISCELLANEOUS		
⚠K701L	6450262005	SOCKET,CRT 8P
	6450317699	SOCKET,CRT 8P
	6520017726	SOCKET,CRT 8P

Ref. No.	Part No.	Description

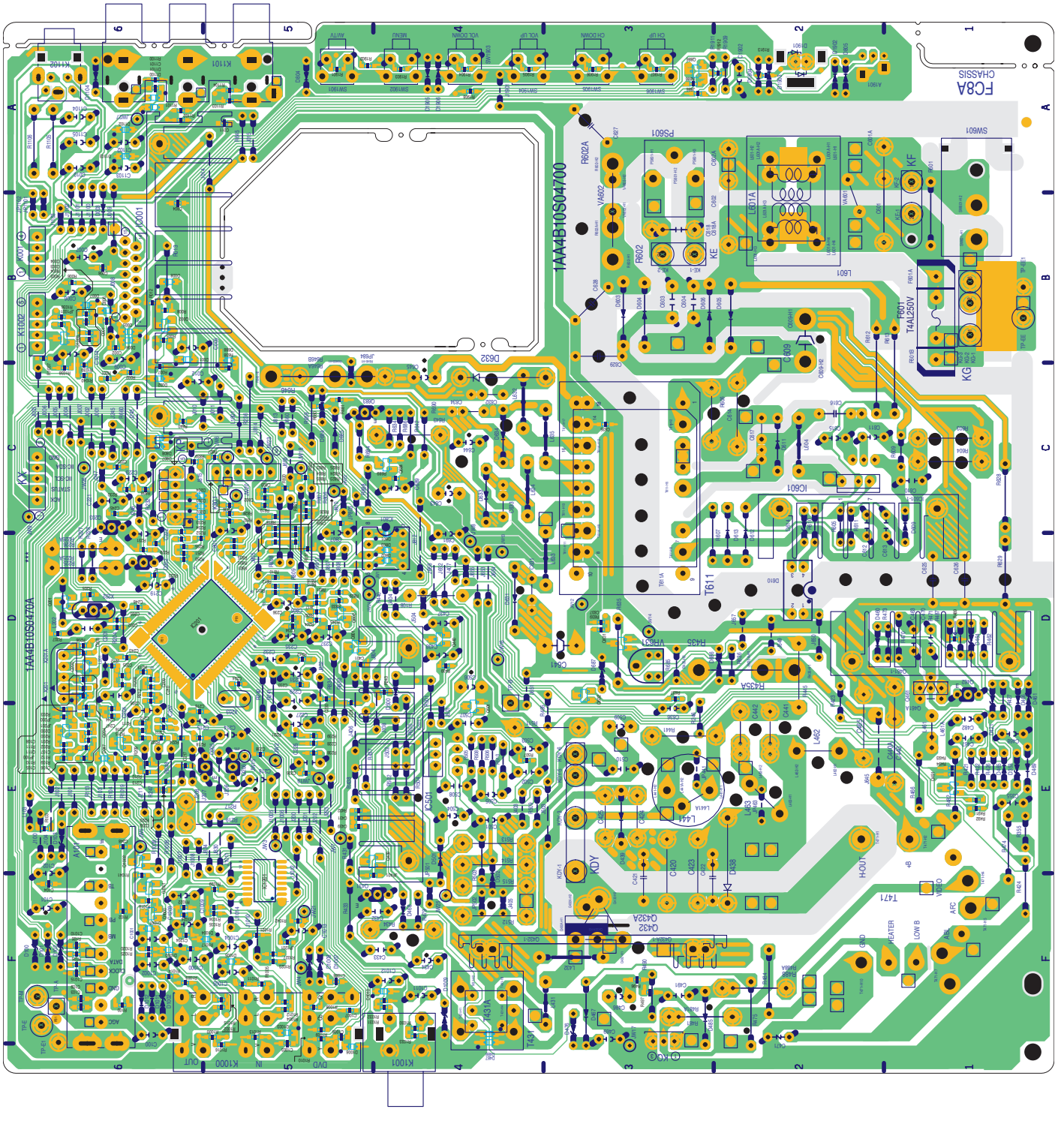
Component Locations

Main Board (Parts Side)



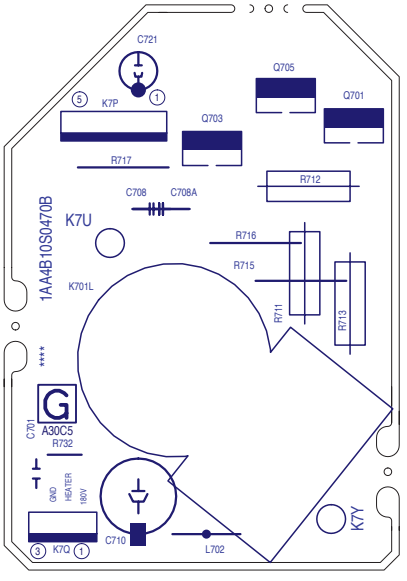
Component Locations

Main Board (Solder Side)

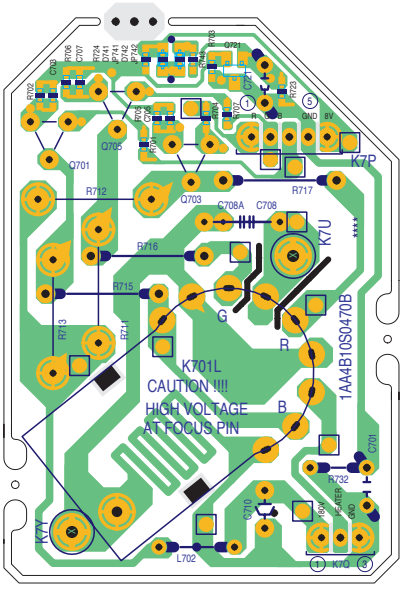


Component Locations

CRT Board (Parts Side)



CRT Board (Solder Side)



Voltages and Waveforms Charts

Note: Voltages and waveforms were measured with colour bar signal and controls adjusted for normal picture.

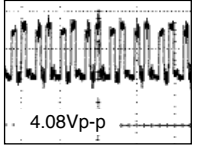
Main Board

Q002	Q1000	Q1001	Q1002	Q111	Q200	Q202	Q203	Q204	Q205	Q206	Q431
E 7.8V	E 3.9V	E 1.5V	E 1.5V	E 0.9V	E 0.5V	E 5.6V	E 8.4V	E 2V	E 5V	E 5V	E 0V
C 4.8V	C 0.5V	C 8.4V	C 8.4V	C 5.6V	C 0.6V	C 10.7V	C 11.4V	C 5.6V	C 7.6V	C 7.9V	C 16.5V
B 4.2V	B 3.3V	B 2V	B 2V	B 1.6V	B 1.3V	B 6.2V	B 9V	B 2.3V	B 5.7V	B 7.7V	B 0.4V

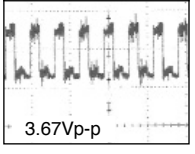
Q432A	Q439	Q440	Q461A	Q462	Q491	Q501	Q631	Q632	Q683	Q684	Q801
E 1.4V	E 1.6V	E 3.5V	E 15V	E 1.5V	E 2.7V	E 0V	E 6.4V	E 0V	E 27V	E 0.5V	E 0V
C 226.5V	C 3.5V	C 5V	C 0V	C 15.2V	C 0V	C 1.95V	C 9.4V	C 5.8V	C 26.8V	C 0.6V	C 7.8V
B 0V	E 1.6V	B 6.8V	B 15.6V	B 0.5V	B 2V	B 0V	B 6.9V	B 0V	B 26.3V	B 1.2V	E 0.2V

Q802	Q886
E 0V	E 0V
C 0V	C 0V
B 0.65V	B 0.7V

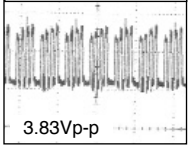
IC201-pin47 <R out>



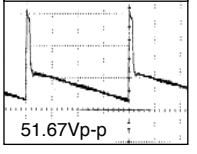
IC201-pin46 <G out>



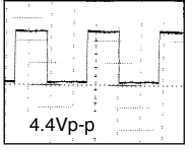
IC201-pin45 <B out>



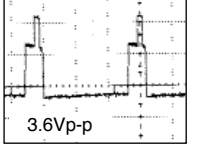
IC501-pin5 <V out>



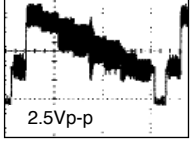
IC201-pin19 <H drive>



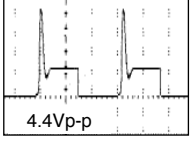
IC201-pin20 <Sandcastle>



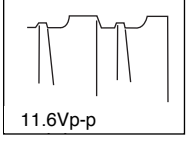
IC201-pin68 <CVBS int.>



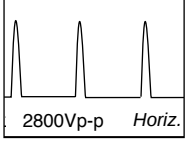
Q431-C <H drive>



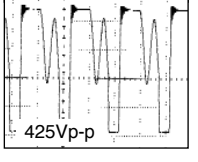
Q432-B <H out>



Q432-C <H out>



IC601-pin1 <Power out>



IC001 (AUDIO AMP.)

Pin-1 0V **2.** 1.3V **3.** 1.3V **4**. Gnd **5**. 12.8V **6**. 0 **7**. 6.7V **8.** 0V **9**. 12.6V
10 0.5V **11.** 3V **12.** 0.6V **13.** 6.7V **14** 6.7V **15.** 0V

IC1201 (AUDIO SWITCH)

Pin-1 5.5V **2** 1.5V **3** 1.5V **4**. 0 **5**. 5.5V **6**. 0V **7**. 0V **8**. 5.5V **9**. 1.5V
10 1.5V **11** 7.8V

IC501 (VERT. OUT)

Pin-1 23.7V **2**. 0 V **3** 23.2V **4**. GND **5**. 12V **6**. 0V **7**. 0V

IC601 (POWER)

Pin-1 306.5V **2**. 0 **3**. 0 **4**. 20,8V **5**. 0.15V **6**. 0.14V **7**. 0.7V

IC801 (MEMORY)

Pin-1 GND **2** GND **3**. GND **4**. GND **5**. 5V **6**. 5V **7**. 0V **8** 5V

Voltages and Waveforms Charts

CRT Board

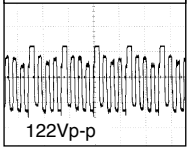
Q701	
E	2.3V
C	7.6V
B	2V

Q703	
E	2.3V
C	9V
B	2.1V

Q705	
E	2.3V
C	9V
B	2V

Q721	
E	0.9V
C	0V
B	0V

Q701-C
<B-out>



122Vp-p

Q701-B
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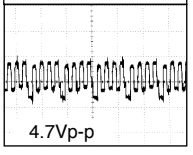

4.7Vp-p

Q705-C
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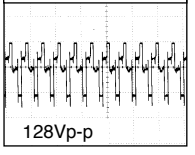

128Vp-p

Q705-B
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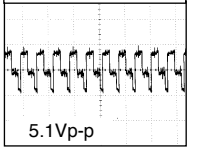
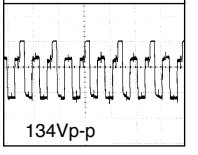


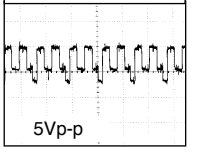
5.1Vp-p

Q703-C
<R-out>



134Vp-p

Q703-B
<R drive>



5Vp-p

June /'08

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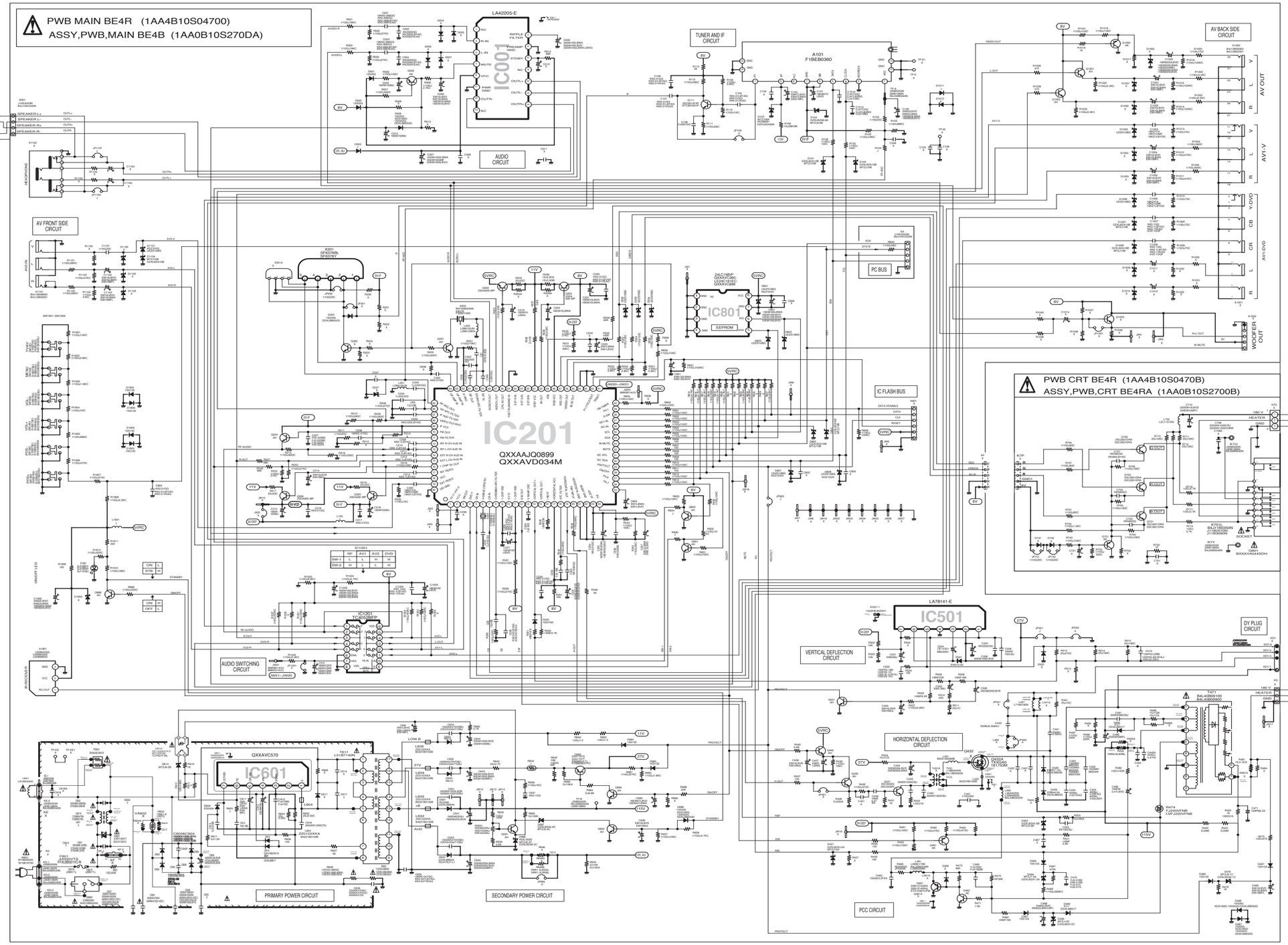

LIST OF REPLACEABLE TRANSISTORS

(2SA933S TYPE)

	14TH CODE	2SA933S	2SA1015	2SA564A
AB	7T200181	R	Y,GR	R
AC	7T200182	Q,R	O,Y,GR	Q,R

(2SA1037K CHIP TYPE)

	14TH CODE	2SA1037AK	2SA1235A	KTA1504S
AK	7T200221	R,S	1E,1F, C1E,C1F	GR

(2SC1740S TYPE)

	14TH CODE	2SC1740S	2SC945A	2SC1815
AD	7T200183	Q,R,S	QA,PA	Y,GR
AE	7QT00202	Q,R,S	RA,QA,PA	O,Y,GR

(2SC2412K CHIP TYPE)

	14TH CODE	2SC2812	2SC2412K
AH	7T200220	L6,L7	R,S

LIST OF REPLACEABLE DIODE

	14TH CODE	DIODE NAME
R	7DD00019	1S1555,1S2473,1S2076,DS442,1N4148
AA	7DD00192	1S1555,1S2473,1S2076,DS442,1N4148 1SS176,1SS133,1SV229
M	7ED00025	1SS176,GMA01,1SS133
P	7DD00021	1S1553,1S2076A,1S2471,1N4148

THE SERVICE PRECAUTION:
The area enclosed by this line(⏚⏚⏚) is directly connected with AC mains voltage. When servicing the area, connect an isolating transformer between TV receiver and AC line to eliminate hazard of electric shock.

SANYO

COLOUR TELEVISION

FC8-A

CHASSIS SERIES

SERVICE REF. NO. **CT21KS2-00**

BE4B

PRODUCT SAFETY NOTICE:
Product safety should be considered when a component replacement is made in any area of a receiver.
Components indicated by a mark ⚠ in this circuit diagram show components whose values have special significance to product safety. It is particularly recommended that only parts specified on the part service manual be used for components replacement pointed out by the mark.

CIRCUIT DIAGRAM NOTICE:
1. All resistance value are in ohms, K=1,000, M=1,000,000.
2. All resistance rated wattages are 1/6W unless otherwise noted.
3. Excepting electrolytic capacitors, all capacitance values of less than 1 are expressed in μ F and more than 1 are pF.
4. All capacitance rated voltages are 50V unless otherwise noted.
5. All inductance values are in μ H.
6. Voltage readings take with a "VTVM" are from point indicated chassis ground. Voltage readings taken by using PAL colour bar signal are with all controls at normal position. Some voltage may vary with signal strength.
7. Waveform were taken with PAL colour bar and controls adjusted for normal picture. Waveforms were taken by using a wide band oscillo-scope and a low capacity probe.
8. This circuit diagram covers a basic or representative chassis only. There may be some components or partial circuit differences between the actual chassis and the circuit diagram.
9. Parts specified with "X" are not installed in this model.
10. Parts specified with "J" are just jumper wires.

11. Expression of capacitance and resistance in circuit diagrme.

Capacitance (Example)

1000 C M 2000 D
- Characteristic
- Capacitance value (220pF)
- Allowable error (±20%)
- Kind (Ceramic)
- Rated voltage (1,000V)

Allowable error: J= ± 5%, K= ±10%, M= ±20%
Kind: T, A, U, D: Electrolytic; C, K, B: Ceramic; F: Mylar film; M, N: Polypropylene; Z: Metalized paper

Resistance (Example)

1/2 N J 1.2
- Resistance value (1.2Ω)
- Allowable error (±5%)
- Kind (M.carbon)
- Rated wattage (1/2W)

Kind: D: Carbon; N: Metalized carbon; S: Oxied metalized; W: Wire wounding; C: Solid

TRANSISTOR, DIODE AND INTEGRATED CIRCUIT TERMINAL GUIDE

C: COLLECTOR
B: BASE
E: EMITTER

A: ANODE
K: KATHODE

CHIP COMPONENTS

TRANSISTOR
DIODE
RESISTOR 12 X 10²=12K

PARTICULAR PARTS SYMBOL

FUSIBLE RESISTOR
NON POLE ELECTRIC CAPACITOR
POSISTER